GETTING READY FOR GRADE 5

Name _____

Name _____

Add Dollars and Cents

Essential Question How can you find sums of decimal amounts in dollars and cents?

Unlock the Problem (Real World)

Carlos bought a new skateboard for $99.46 and a helmet and pads for $73.49. How much did Carlos spend in all?

- What operation can you use to find the amount Carlos spent?

_____

You add money amounts in the same way as you add whole numbers. Use the decimal point to line up the digits.

Use place value.

Add. $99.46 + $73.49

STEP 1	STEP 2	STEPS 3 and 4	STEP 5
Add the pennies. Regroup 15 pennies.	Add the dimes.	Add the ones. Add the tens.	Insert the decimal point and dollar sign.
1 $ 99.46 + $ 73.49 5	1 $ 99.46 + $ 73.49 95	1 1 $ 99.46 + $ 73.49 172 95	1 1 $ 99.46 + $ 73.49 $172 95

So, Carlos spent $172.95.

Try This! **Find the sum.**

A.

	$	2	3	.	1	8	
+	$	5	7	.	4	5	

B.

	$	1	9	.	0	7	
+	$	6	5	.	2	8	

Math Talk Mathematical Practices

Explain how you know when to regroup.

Share and Show

MATH BOARD

1. Explain what is happening in Step 2.

_____

_____

_____

_____

STEPS 1 and 2	STEPS 3 AND 4	STEP 5
1	11	11
$84.60	$84.60	$84.60
+ $35.70	+ $35.70	+ $35.70
30	120 30	$ 120 30

Find the sum.

2. $ 3.09 + $ 8.92

3. $ 26.08 + $ 41.39

4. $ 7.27 + $ 26.43

5. $ 30.47 + $ 28.56

On Your Own

Find the sum.

6. $ 9.57 + $ 4.09

7. $ 89.36 + $ 3.85

8. $ 23.75 + $ 10.98

9. $ 8.52 + $ 36.07

10. $ 48.92 + $ 7.08

11. $ 60.45 + $ 17.42

12. $ 58.02 + $ 73.54

13. $ 61.74 + $ 60.57

Problem Solving Real World

14. Lena bought new inline skates for $49.99. The sales tax was $4.13. How much did Lena spend in all for her new inline skates?

_____

Name _____

Add Dollars and Cents

To add money amounts, line up the decimal points and then add as with whole numbers.

Find the sum.

$38.37 + $41.47

Step 1

Write the problem on grid paper. Align the digits by place value. Think of pennies as hundredths and dimes as tenths.

		T	O		T	H
	$	3	8	.	3	7
+	$	4	1	.	4	7

Step 2

Add the hundredths. Regroup 14 hundredths as 1 tenth 4 hundredths. Write 1 in the tenths column.

Then add the tenths.

		T	O		T	H
					1	
	$	3	8	.	3	7
+	$	4	1	.	4	7
					8	4

Step 3

Add the ones and then add the tens. Regroup if necessary.

Write the decimal point and dollar sign.

		T	O		T	H
					1	
	$	3	8	.	3	7
+	$	4	1	.	4	7
	$	7	9	.	8	4

So, $38.37 + $41.47 = $79.84.

Find the sum.

1. $7.81 + $5.09

2. $35.06 + $51.48

3. $ 5.32 + $85.44

4. $40.36 + $17.45

5. $37.60 + $ 9.04

6. $80.26 + $19.31

7. $48.04 + $64.65

8. $52.66 + $50.48

9. $8.47 + $7.33

10. $69.19 + $ 4.95

11. $24.70 + $62.33

12. $10.00 + $25.75

Name _____

Add Dollars and Cents

Find the sum.

1. 1 1 1 \$58.36 + \$ 5.87 \$64.23	**2.** \$7.96 + \$3.08	**3.** \$98.45 + \$ 4.76	**4.** \$14.66 + \$30.76
5. \$26.71 + \$ 5.09	**6.** \$30.25 + \$27.42	**7.** \$54.01 + \$85.23	**8.** \$42.49 + \$30.73
9. \$ 7.76 + \$54.02	**10.** \$21.06 + \$63.48	**11.** \$34.59 + \$ 7.45	**12.** \$53.97 + \$60.00
13. \$71.25 + \$ 5.90	**14.** \$40.39 + \$17.25	**15.** \$14.99 + \$ 5.23	**16.** \$22.85 + \$40.25
17. \$ 5.23 + \$30.55	**18.** \$43.32 + \$86.85	**19.** \$31.26 + \$88.90	**20.** \$83.77 + \$60.35

Problem Solving (Real World)

21. The bill for tonight's dinner is \$56.85. Mr. Asham adds a \$10.50 tip. How much does Mr. Asham pay in all?

_____

22. Maria buys a video game for \$25.99 and batteries for \$7.30. What is the total cost for these two items?

_____

Name _____

Subtract Dollars and Cents

Essential Question How can you find differences between decimal amounts in dollars and cents?

Unlock the Problem (Real World)

Sandi wanted to buy a new coat online. She figured out that the cost of the coat, with shipping, would be $84.24. The next week, Sandi bought the same coat in a local store on sale for a total of $52.47. How much did Sandi save by buying the coat on sale?

- Underline the information you need to solve the problem.
- What operation can you use to find the difference between the two prices?

_____

You subtract money amounts in the same way as you subtract whole numbers.

Use place value.

Subtract. $84.24 − $52.47

Use the decimal point to line up the digits. Work from right to left. Check each place to see if you need to regroup to subtract.

STEP 1	STEP 2	STEPS 3 and 4	STEP 5
Regroup 2 dimes and 4 pennies as 1 dime and 14 pennies. Subtract the pennies.	Regroup 4 dollars and 1 dime as 3 dollars and 11 dimes. Subtract the dimes.	Subtract the ones. Subtract the tens.	Insert the decimal point and dollar sign.
1 14 $84.2~~4~~ − $52.47 7	11 3 ~~1~~ 14 $8~~4~~.~~2~~~~4~~ − $52.47 77	11 3 ~~1~~ 14 $8~~4~~.~~2~~~~4~~ − $52.47 31 77	11 3 ~~1~~ 14 $8~~4~~.~~2~~~~4~~ − $52.47 $31 77

So, Sandi saved $31.77.

Math Talk Mathematical Practices

Explain how you know in which places to regroup to subtract.

Share and Show

MATH BOARD

1. Find the difference. Regroup as needed.

$$\begin{array}{r} \$\ 7.14 \\ -\ \$\ 4.38 \\ \hline \end{array}$$

Find the difference.

2. $\$5.89 - \$3.16$

3. $\$30.07 - \$11.32$

4. $\$60.00 - \$42.75$

5. $\$99.08 - \$91.36$

On Your Own

Find the difference.

6. $\$9.08 - \$7.26$

7. $\$73.45 - \$12.13$

8. $\$90.00 - \$42.17$

9. $\$80.03 - \$49.53$

10. $\$15.36 - \$\ 2.73$

11. $\$84.00 - \$27.85$

12. $\$74.19 - \$\ 8.46$

13. $\$79.62 - \$23.58$

Problem Solving

Real World

14. Bert earned $78.70 last week. This week he earned $93.00. How much more did he earn this week than last week?

_____

Name _____

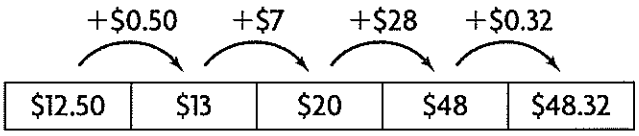
Subtract Dollars and Cents

You can count up to find a difference.

Find the difference.

$48.32 − $12.50

Step 1 Start with $12.50, the amount being subtracted. Count up until you reach $48.32. Record each amount that you use to count up.



Step 2 Add the distances between counts to find the difference.

$0.50 + $7.00 + $28.00 + $0.32 = $35.82

So, $48.32 − $12.50 = $35.82.

Find the difference.

1. $7.22 − $4.02

2. $36.06 − $34.48

3. $80.00 − $35.75

4. $98.36 − $21.15

5. $47.90 − $ 8.34

6. $60.24 − $14.10

7. $78.54 − $ 9.62

8. $52.00 − $10.98

9. $75.32 − $24.32

10. $85.09 − $43.56

11. $90.50 − $76.80

12. $12.13 − $ 4.58

Name ______________________________

Subtract Dollars and Cents

Find the difference.

1. 12 7 2 16 $58.36 − $26.87 $31.49	**2.** $3.05 − $1.18	**3.** $9.43 − $7.08	**4.** $6.25 − $4.88
5. $15.20 − $ 9.47	**6.** $64.66 − $ 3.85	**7.** $80.00 − $ 9.99	**8.** $52.03 − $ 7.46
9. $73.18 − $18.42	**10.** $21.64 − $10.95	**11.** $48.57 − $20.69	**12.** $60.35 − $39.54
13. $91.32 − $ 8.79	**14.** $23.06 − $ 6.97	**15.** $58.30 − $ 9.41	**16.** $41.45 − $ 7.59
17. $34.20 − $18.15	**18.** $56.20 − $20.50	**19.** $43.17 − $30.09	**20.** $95.44 − $78.56

Problem Solving (Real World)

21. A soccer ball costs $17.99. Karla hands the cashier $20.00. How much change does she get back?

____

22. Hal earned $56.50 dog sitting last month. Liz earned $87.00. How much more did Liz earn than Hal?

____

Name _____

Order of Operations

Essential Question How can you use the order of operations to find the value of expressions?

Unlock the Problem (Real World)

At a visit to the Book Fair, Jana buys 7 hardcover books and 5 paperback books. She is going to give an equal number of books to each of her three cousins. How many books will each of Jana's cousins get?

- What operation can you use to find the total number of books that Jana buys?

_____

- What operation can you use to find how many books each of Jana's cousins gets?

_____

To find the value of an expression involving parentheses, you can use the order of operations. Remember, the order of operations is a special set of rules that give you the order in which calculations are done in an expression.

First, perform operations inside the parentheses.

Then, multiply and divide from left to right.

Finally, add and subtract from left to right.

Use the order of operations to find the value of (7 + 5) ÷ 3.

STEP 1

Perform operations in parentheses.

(7 + 5) ÷ 3

_____ ÷ 3

STEP 2

Use the order of operations. In this case, divide.

12 ÷ 3

_____

So, each of Jana's cousins will get 4 books.

- **What if** Jana decides to keep 3 books for herself? How will this change the expression? How many books will each of Jana's cousins get?

_____

_____

_____

Math Talk Mathematical Practices

What operation should you do first to find the values of (6 + 2) × 3 and 6 + (2 × 3)? What is the value of each expression?

Share and Show

MATH BOARD

Write *correct* if the operations are listed in the correct order. If not correct, write the correct order of operations.

1. $(4 + 5) \times 2$ multiply, add

_____

2. $8 \div (4 \times 2)$ multiply, divide

_____

3. $12 + (16 \div 4)$ add, divide

_____

4. $9 + 2 \times (3 - 1)$ add, multiply, subtract

_____

Follow the order of operations to find the value of the expression. Show each step.

5. $6 + (2 \times 5)$

_____

6. $18 - (12 \div 4)$

_____

7. $8 \times (9 - 3)$

_____

8. $(12 + 8) \div 2 \times 3$

_____

On Your Own

Follow the order of operations to find the value of the expression. Show each step.

9. $6 + (9 \div 3)$

_____

10. $(3 \times 6) \div 2$

_____

11. $(49 \div 7) + 5$

_____

12. $9 \times (8 - 2)$

_____

13. $45 \div (17 - 2)$

_____

14. $(32 + 4) \div 9 - 2$

_____

15. $8 \times 9 - (12 - 8)$

_____

16. $(36 - 4) + 8 \div 4$

_____

Problem Solving Real World

17. Mr. Randall bought 4 shirts, which were on sale. The shirts were originally priced $20. The sales price of the shirts was $5 less than the original price. Write and find the value of an expression for the total amount that Mr. Randall paid for the shirts.

_____

Name _____

Algebra • Order of Operations

The **order of operations** is a set of rules that gives the order in which calculations are done in an expression.

Use the order of operations to find the value of the expression. Show each step.

Order of Operations

1. First, perform operations inside the parentheses.
2. Then, multiply and divide from left to right.
3. Last, add and subtract from left to right.

$8 + (10 \div 5) - 4$

Step 1	Step 2	Step 3
First divide. **Think:** $10 \div 5 = 2$	Then add and subtract from left to right. **Think:** $8 + 2 = 10$	Subtract.
$8 + (10 \div 5) - 4$ $8 + 2 - 4$	$8 + 2 - 4$ $10 - 4$	$10 - 4 = 6$

So, $8 + (10 \div 5) - 4 = 6$.

Write *correct* if the operations are listed in the correct order. If not correct, write the correct order of operations.

1. $(9 \div 3) \times 4$ multiply, divide

_____

2. $15 - (8 \div 2)$ subtract, divide

_____

3. $(36 + 10) \times 3$ multiply, add

_____

4. $(16 - 4) \div 2 + 5$ subtract, divide, add

_____

Follow the order of operations to find the value of the expression. Show each step.

5. $(6 \times 7) + 3$ _____

6. $(8 + 12) \div 4$ _____

7. $(20 - 5) \times 3 + 4$ _____

8. $18 + 6 + (16 \div 4)$ _____

Name _____

Order of Operations

Follow the order of operations to find the value of the expression. Show each step.

1. $3 + (18 \times 2) \div 3$

$3 + 36 \div 3$
$3 + 12$
15

2. $(20 - 8) \times 2$

_____

3. $(48 \div 6) + 5$

_____

4. $(9 \times 4) + 6$

_____

5. $(10 + 5) \times 9$

_____

6. $(40 \div 10) + 11$

_____

7. $5 + (21 \div 3) \times 5$

_____

8. $7 \times 4 + (15 \div 3)$

_____

9. $6 + (24 \div 8) - 3$

_____

10. $43 - 28 + (12 \div 2)$

_____

11. $(13 \times 2) - 2 - 5$

_____

12. $15 + 6 \times (8 \div 4)$

_____

Problem Solving (Real World)

13. Each carton has 12 eggs. There are 2 full cartons in the refrigerator. Margot uses 3 eggs to make a quiche. How many eggs are left?

_____

14. There are 6 rows in the parking lot. Each row has 12 parking spaces. At 9 o'clock the lot is full. An hour later, there are 15 empty spaces. How many cars are in the lot an hour later?

_____

Name _____

Divide by Multiples of Ten

Essential Question How can you use patterns to divide by multiples of ten?

Unlock the Problem (Real World)

A charity asked 10 volunteers to hand out 2,000 flyers about a fund-raising event. Each volunteer will get the same number of flyers. How many flyers will each volunteer hand out?

You can use patterns and a basic fact to divide by multiples of ten.

Example 1 Find 2,000 ÷ 10.

Think: I know that 2 ÷ 1 = 2, so 20 ÷ 10 = 2.

20 ÷ 10 = 2

200 ÷ 10 = 20

2,000 ÷ 10 = 200

So, each volunteer will hand out _____ flyers.

Describe the pattern used to divide 2,000 by 10.

_____

_____

_____

Example 2 Find 2,800 ÷ 40.

28 ÷ 4 = 7, so 280 ÷ 40 = _____.

2,800 ÷ 40 = _____

Math Talk — Mathematical Practices

Explain how you can use basic facts to help divide by multiples of ten.

Share and Show

MATH BOARD

1. Find 6,000 ÷ 20.

Think: I can use patterns to divide, starting with 60 ÷ 20.

6 ÷ 2 = _____, so 60 ÷ 20 = _____.

600 ÷ 20 = _____

6,000 ÷ 20 = _____

Divide. Use a pattern to help.

2. 8,000 ÷ 20 = _____

3. 4,000 ÷ 40 = _____

4. 1,200 ÷ 60 = _____

On Your Own

Divide. Use a pattern to help.

5. 9,000 ÷ 30 = _____

6. 5,000 ÷ 50 = _____

7. 1,800 ÷ 60 = _____

8. 7,000 ÷ 10 = _____

9. 3,200 ÷ 80 = _____

10. 6,300 ÷ 90 = _____

Problem Solving

Real World

11. A group of musicians wants to sell a total of 1,000 tickets for 20 concerts. Suppose they sell the same number of tickets for each concert. How many tickets will they sell for each concert? Explain how you solved the problem.

_____

_____

_____

Name _____

Divide by Multiples of Ten

You can use basic facts and patterns to divide by multiples of ten.

Divide. Use a pattern to help.

6,000 ÷ 30

Step 1

Look for a basic fact.

6,000 ÷ 30

Think: 6 ÷ 3

The basic fact is 6 ÷ 3 = 2.

Step 2

Use the basic fact to find a division sentence with the same divisor as the original problem.

6,000 ÷ 30 ← divisor

Think: 6 ÷ 3 = 2, so
60 ÷ 30 = 2.

Step 3

Now look for a pattern.

Think: If the number of zeros in the dividend increases, the number of zeros in the quotient increases by the same number.

dividend → 60 ÷ 30 = 2 ← quotient
600 ÷ 30 = 20
6,000 ÷ 30 = 200

So, 6,000 ÷ 30 = 200.

Divide. Use a pattern to help.

1. 1,600 ÷ 20 = _____ **2.** 2,400 ÷ 80 = _____ **3.** 3,600 ÷ 40 = _____

4. 1,200 ÷ 30 = _____ **5.** 8,000 ÷ 40 = _____ **6.** 2,000 ÷ 50 = _____

7. 6,000 ÷ 10 = _____ **8.** 4,900 ÷ 70 = _____ **9.** 5,400 ÷ 60 = _____

Name _____

Divide by Multiples of Ten

Divide. Use a pattern to help.

1. $1{,}500 \div 30 =$ 50
   $15 \div 3 = 5$, so $150 \div 30 = 5$.
   $1{,}500 \div 30 = 50$
2. $2{,}000 \div 20 =$ _____
3. $4{,}000 \div 80 =$ _____
4. $6{,}000 \div 30 =$ _____
5. $9{,}000 \div 30 =$ _____
6. $8{,}000 \div 40 =$ _____
7. $1{,}000 \div 20 =$ _____
8. $3{,}500 \div 50 =$ _____
9. $8{,}100 \div 90 =$ _____
10. $6{,}400 \div 80 =$ _____
11. $2{,}400 \div 60 =$ _____
12. $6{,}000 \div 60 =$ _____
13. $2{,}100 \div 70 =$ _____
14. $5{,}400 \div 90 =$ _____
15. $2{,}700 \div 30 =$ _____

Problem Solving (Real World)

16. A food bank has 3,600 boxes of food. The boxes will be loaded equally onto 60 trucks. How many boxes of food will be on each truck?

_____

17. A stadium has a seating capacity of 8,000. Suppose it is divided into 20 equal sections. How many seats are in each section? **Explain.**

_____

_____

_____

_____

Name _____

Model Division with 2-Digit Divisors

Essential Question How can you use models to divide?

CONNECT You have used base-ten blocks to divide whole numbers by 1-digit divisors. You can follow the same steps to divide whole numbers by 2-digit divisors.

Unlock the Problem (Real World)

Activity **Materials** ■ base-ten blocks

There are 154 children participating in a soccer tournament. There are 11 equal-sized teams of children. How many children are on each team?

- What do you need to find?

_____

_____

- What is the dividend? the divisor?

_____

STEP 1

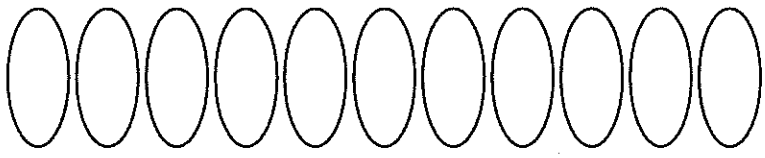
Use base-ten blocks to model 154 children. Show 154 as 1 hundred 5 tens 4 ones. Draw 11 ovals for the teams.

STEP 2

Share the base-ten blocks equally among 11 groups. Since there are not enough hundreds to share equally, regroup 1 hundred as 10 tens. There are now 15 tens. Share the tens and draw a vertical line segment for each ten.

STEP 3

If there are any tens left over, regroup each as 10 ones. Share the ones equally among 11 groups. Draw a small circle for each one.



There are _____ ten(s) and _____ one(s) in each group.

So, there are _____ children on each team.

- Explain why you need to regroup in Step 3.

_____

_____

_____

Math Talk Mathematical Practices

Explain how you can check your answer.

Share and Show

1. Use base-ten blocks to find 182 ÷ 14. Describe the steps you took to find your answer.

_____

_____

_____

_____

Use base-ten blocks to divide.

2. 60 ÷ 12 = _____

3. 135 ÷ 15 = _____

On Your Own

Use base-ten blocks to divide.

4. 180 ÷ 10 = _____

5. 150 ÷ 15 = _____

6. 88 ÷ 11 = _____

7. 96 ÷ 16 = _____

8. 176 ÷ 11 = _____

9. 156 ÷ 13 = _____

Problem Solving Real World

10. Nicole has $250 in ten-dollar bills. How many ten-dollar bills does Nicole have?

_____

11. At Dante's party, 16 children share 192 crayons. At Maria's party, 13 children share 234 crayons. Each party splits the crayons up equally among the children attending. How many more crayons does each child at Maria's party get than each child at Dante's party? Explain.

_____

_____

_____

Name _____

Model Division with 2-Digit Divisors

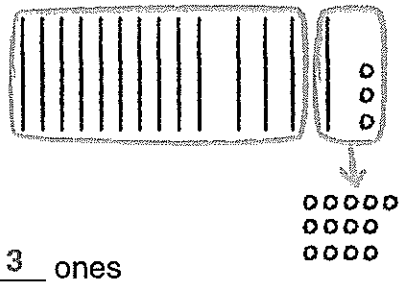
You can use models to divide a whole number by a 2-digit divisor.

Use base-ten blocks to find 143 ÷ 13.

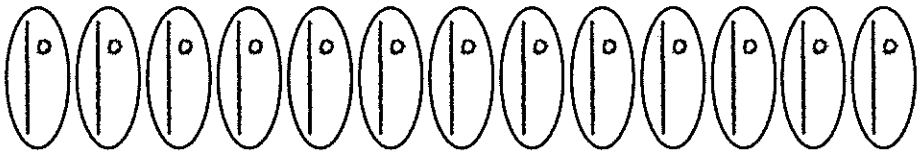
Step 1 Use base-ten blocks to model the dividend, 143.
Show 143 as 1 hundred 4 tens 3 ones.

Remember: Each large square represents 100, each line represents 10, and each small circle represents 1.

Step 2 The divisor is 13. Divide the blocks equally between 13 groups. Since you cannot share the one-hundred square equally between the 13 groups, first break it into 10 tens. Then you will have 14 tens, altogether. Share the tens equally among 13 groups.



Step 3 After completing Step 2, you will have 1 ten and 3 ones left over. Since you cannot share the 10 equally between the 13 groups, break it into 10 ones. Then you will have 13 ones, altogether. Share the 13 ones equally among the 13 groups.



Each group contains 1 ten and 1 one, or 11. So 143 ÷ 13 = 11.

Use base-ten blocks to divide.

1. 65 ÷ 5 = _____

2. 84 ÷ 14 = _____

3. 120 ÷ 8 = _____

4. 96 ÷ 16 = _____

5. 168 ÷ 12 = _____

6. 99 ÷ 33 = _____

Name _____

Model Division with 2-Digit Divisors

Use base-ten blocks to divide.

1. 154 ÷ 11

14

2. 48 ÷ 16

3. 95 ÷ 19

4. 288 ÷ 16

5. 120 ÷ 15

6. 140 ÷ 10

7. 132 ÷ 12

8. 204 ÷ 12

9. 250 ÷ 10

10. 154 ÷ 11

11. 39 ÷ 13

12. 165 ÷ 11

Problem Solving Real World

13. A theater has 126 seats. The theater has 14 rows with the same number of seats in each row. How many seats are in each row?

14. Leila has $360 in twenty-dollar bills. How many twenty-dollar bills does she have?

Name _____

Checkpoint

Concepts and Skills

Find the sum or difference.

1. $\$2.87 + \$8.09$

2. $\$7.65 - \$5.23$

3. $\$37.05 + \$14.95$

4. $\$30.00 - \$12.69$

Use base-ten blocks to divide.

5. $143 \div 11$ _____

6. $224 \div 16$ _____

7. $108 \div 18$ _____

Follow the order of operations to find the value of the expression. Show each step.

8. $(8 \times 2) + 4$ _____

9. $16 - (3 \times 5)$ _____

10. $24 \div (15 - 7)$ _____

11. $15 \div (9 - 4) \times 4$ _____

Divide. Use a pattern to help.

12. $6{,}000 \div 30$ _____

13. $2{,}000 \div 20$ _____

14. $3{,}200 \div 40$ _____

15. $8{,}100 \div 90$ _____

Problem Solving (Real World)

16. Ellis bought groceries that were worth $99.86. After using coupons, the bill was $84.92. How much did Ellis save by using coupons?

_____

Fill in the bubble completely to show your answer.

17. Taby buys a dog leash for $18.50 and a dog collar for $12.75. What is the total cost of the leash and the collar?

Ⓐ $5.75

Ⓑ $6.25

Ⓒ $30.25

Ⓓ $31.25

18. Mr. Martin pays $35.93 for shoes for himself and $18.67 for shoes for his son. How much more do Mr. Martin's shoes cost than his son's?

Ⓐ $17.26

Ⓑ $17.36

Ⓒ $23.24

Ⓓ $54.60

19. Chris and Susan each collect baseball cards. Chris has 75 cards and Susan has 93 cards. They want to combine their collections and divide the cards evenly between them. Which expression can they use to find the number of cards each of them should have?

Ⓐ $75 + 93 \div 2$

Ⓑ $75 + (93 \div 2)$

Ⓒ $(75 + 93) \times 2$

Ⓓ $(75 + 93) \div 2$

20. A store expects 4,000 customers during its 20-hour sale. Suppose the same number of customers arrives each hour. How many customers come each hour?

Ⓐ 20

Ⓑ 200

Ⓒ 2,000

Ⓓ 8,000

Name _____

Place Value Through Millions

Essential Question How can you read, write, and represent whole numbers through millions?

Unlock the Problem (Real World)

The population of Idaho is about 1,550,000. Write 1,550,000 in standard form, word form, and expanded form.

- What is the value of the ten thousands place?

_____

You know how to read and write numbers through hundred thousands. The place-value chart can be expanded to help you read and write greater numbers, like 1,550,000.

One million is 1,000 thousands and is written as 1,000,000. The millions period is to the left of the thousands period on a place-value chart.

PERIODS

MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
		1,	5	5	0,	0	0	0
		1 × 1,000,000	5 × 100,000	5 × 10,000	0 × 1,000	0 × 100	0 × 10	0 × 1
		1,000,000	500,000	50,000	0	0	0	0

The place value of the 1 in 1,550,000 is millions.

Standard form: 1,550,000

Word Form: One million, five hundred fifty thousand

Expanded Form: 1,000,000 + 500,000 + 50,000

Math Talk Mathematical Practices

Explain how 8,000,000 is different than 800,000.

Try This! **Use place value to read and write the number.**

Standard Form: _____

Word Form: Sixty-two million, eighty thousand, one hundred twenty-six

Expanded Form: 60,000,000 + _____ +

80,000 + _____ + 20 + 6

Share and Show

MATH BOARD

1. Write the number 3,298,076 in word form and expanded form.

Word Form: _____

_____

Expanded Form: _____

Read and write the number in two other forms.

2. fifty million, three thousand, eighty-seven

_____

_____

_____

3. 60,000,000 + 400,000 + 200 + 30 + 9

_____

_____

_____

_____

On Your Own

Read and write the number in two other forms.

4. 70,000,000 + 8,000,000 + 20,000 + 8

_____

_____

_____

5. twenty million, eleven thousand, twelve

_____

_____

_____

Write the value of the underlined digit.

6. 3,3<u>5</u>6,000 _____

7. 45,687,<u>9</u>09 _____

8. <u>7</u>0,000,044 _____

9. <u>3</u>0,051,218 _____

Problem Solving Real World

10. According to one organization, there are about 93,600,000 pet cats and about 77,500,000 pet dogs in the U.S. Are there more pet cats or pet dogs? **Explain** how you know.

_____

_____

_____

_____

Name _____

Place Value Through Millions

You can use a place-value chart to help you read and write numbers through millions.

You can group the digits in a whole number into sections called periods. Each period has 3 digits.

Each digit in a whole number has both a place and a value. In the place value chart below, the digit 3 is in the hundred thousands place. So its value is 3 × 100,000, or 300,000.

Periods

Millions			Thousands			Ones		
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
2	8	7	3	1	4	6	5	9

Use the place-value chart to read and write the number in standard form, word form, and expanded form.

Standard Form: 287,314,659

Word Form: two hundred eighty-seven million, three hundred fourteen thousand, six hundred fifty-nine

Expanded Form: 200,000,000 + 80,000,000 + 7,000,000 + 300,000 + 10,000 + 4,000 + 600 + 50 + 9

Read and write the number in two other forms.

1. sixty million, forty thousand, two hundred twenty-nine

2. 8,000,000 + 300,000 + 2,000 + 100 + 8

Name _____

Place Value Through Millions

Read and write the number in two other forms.

1. 4,520,696

   four million, five hundred twenty thousand, six hundred ninety-six;

   4,000,000 + 500,000 + 20,000 + 600 + 90 + 6

2. thirty-one million, six thousand, one hundred fifty

3. 80,000,000 + 40,000 + 900 + 60

Write the value of the underlined digit.

4. 4,520,696 _____

5. 79,241,043 _____

6. 2,138,824 _____

7. 63,446,364 _____

Problem Solving (Real World)

8. During one decade, the total number of visitors to an annual arts festival was 84,303,912. Write 84,303,912 in standard form, word form, and expanded form.

9. In 2007, the population of the United States was estimated to be 31,139,947. Which place value does the underlined digit represent in this number?

Name _____

Decimals and Place Value

Essential Question How can you use place value to read, write, and represent decimals?

CONNECT Decimals, like whole numbers, can be written in standard form, word form, and expanded form.

Unlock the Problem (Real World)

One of the world's tiniest frogs lives in Asia. Adult males range in length from about 1.06 to 1.28 centimeters, about the size of a pea.

- What decimals do you see in the problem?

_____

- The numbers 1.06 and 1.28 are between which two whole numbers?

_____

You can use a place-value chart to help you understand decimals. Whole numbers are to the left of the decimal point in the place-value chart, and decimal amounts are to the right of the decimal point. The value of each place is one-tenth of the place to its left.

Use a place-value chart.

Write each of the decimals on a place-value chart. Be sure to line up each place and the decimal point.

Ones		Tenths	Hundredths
1	.	0	6
1	.	2	8

The place-value position of the digit 8 in 1.28 is hundredths. The value of the digit 8 in 1.28 is 8 hundredths, or $8 \times \frac{1}{100}$ or 0.08.

You can also write 1.28 in word form and expanded form.

Word form: one and twenty-eight hundredths

Expanded form: $1 + 0.2 + 0.08$

Math Talk Mathematical Practices

Explain why 1.28 is not one and twenty-eight tenths in word form.

Try This! **Use place value to read and write the decimal.**

Standard Form: _____

Word Form: three and forty-six hundredths

Expanded Form: $3 +$ _____ $+$ _____

Share and Show

MATH BOARD

1. Write the decimal 4.06 in word form and expanded form.

Word Form: _____

Expanded Form: _____

Read and write the decimal in two other forms.

2. five and two tenths

_____

3. $6 + 0.8 + 0.09$

_____

_____

On Your Own

Read and write the decimal in two other forms.

4. seven and three hundredths:

_____

5. $2 + 0.3 + 0.01$

_____

_____

Write the value of the underlined digit.

6. $4.\underline{5}6$

_____

7. $5.0\underline{9}$

_____

8. $\underline{7}.4$

_____

9. $1.\underline{3}2$

_____

Problem Solving

Real World

10. James is 1.63 meters tall. Write James's height in word form. **Explain** how you found your answer.

_____

_____

_____

11. Ani was told to write the number four and eight hundredths. She wrote 4.8. **Explain** whether or not you think Ani is correct. If you think she is not correct, write the number correctly.

_____

_____

Name _____

Decimals and Place Value

You can write decimals, like whole numbers, in standard form, word form, and expanded form.

In a place-value chart, whole numbers are to the left of the decimal point. Decimal amounts are to the right of the decimal point. The value of each place is one-tenth, or $\frac{1}{10}$, of the place to its left.

When you write a decimal in word form, write the decimal point as "and."

Write the decimal 12.34 in word form and expanded form.

Start by writing 12.34 in a place-value chart. First, align the decimal point with the decimal in the chart. Then place the digits.

Hundreds	Tens	Ones	.	Tenths	Hundredths
	1	2	.	3	4
	$\frac{1}{}$ × 10	$\frac{2}{}$ × 1	.	$\frac{3}{}$ × $\frac{1}{10}$	$\frac{4}{}$ × $\frac{1}{100}$
	10	2	.	$\frac{3}{10}$	$\frac{4}{100}$

Word form: 12.34 ← Two decimals indicate hundredths.

Twelve and thirty-four hundredths

Expanded Form: Use the last row of the chart to help you write the decimal in expanded form.

12.34 = 10 + 2 + 0.3 + 0.04

Read and write the decimal in two other forms.

1. eight and seven tenths

_____

2. 10 + 3 + 0.9 + 0.05

_____

_____

_____

Name _____

Decimals and Place Value

Read and write the decimal in two other forms.

1. 7.32
   seven and thirty-two hundredths; 7 + 0.3 + 0.02

2. two and six tenths
   _____
   _____

3. 20 + 5 + 0.8 + 0.01
   _____
   _____
   _____

4. 86.04
   _____
   _____
   _____

Write the value of the underlined digit.

5. 6.2<u>4</u>
   0.04

6. 3.<u>2</u>
   _____

7. <u>9</u>.07
   _____

8. 0.4<u>8</u>
   _____

9. <u>1</u>.65
   _____

10. 0.<u>9</u>
    _____

11. 5.1<u>3</u>
    _____

12. 10.<u>8</u>2
    _____

Problem Solving (Real World)

Use the table below for 13 and 14.

Three runners finished a foot race with the following times.

Foot Race Times

Runner	Time (in seconds)
Erika	15.46
Andre	14.89
Conner	15.08

13. Which runner finished the race with a time that has the digit 8 in the hundredths place?
    _____

14. What is Erika's time written in expanded form?
    _____

Name _____

Round Decimals

Essential Question How can you round decimal amounts, including amounts of money, to the nearest whole number or dollar?

Unlock the Problem (Real World)

Ami sells fruits and nuts at an outdoor market. She sold a bag of nuts that weighed 1.35 pounds. About how much did the bag of nuts weigh, rounded to the nearest whole number?

- Underline the information that you need to find.

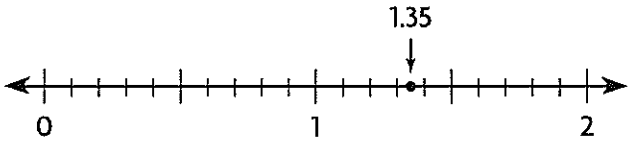
You know that you can use a number line or place value to round whole numbers. You can use the same strategies to round decimals.

Use a number line.

To round a decimal to the nearest whole number, find the whole numbers it is between.

____ < 1.35 < ____

Use a number line to see which whole number 1.35 is closer to.



1.35 is closer to ____ than ____.

So, the bag of nuts weighed about ____ pound.

Math Talk Mathematical Practices

Explain how rounding decimals is like rounding whole numbers.

1. **What if** Ami sold a bag of nuts that weighed 2.82 pounds? About how much does the bag weigh, rounded to the nearest whole number?

_____

2. **Describe** how you would round $3.90 to the nearest whole dollar.

_____

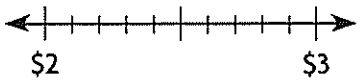
_____

_____

Share and Show

MATH BOARD

1. Round $2.67 to the nearest dollar. Locate and mark $2.67 on the number line. Which whole dollar is it closest to? _____



Round to the nearest dollar or to the nearest whole number.

2. $0.78	**3.** 2.1	**4.** 3.5	**5.** $4.50
_____	_____	_____	_____

On Your Own

Round to the nearest dollar or to the nearest whole number.

6. $1.70	**7.** 2.2	**8.** $3.99	**9.** 3.45
_____	_____	_____	_____
10. $1.53	**11.** 0.9	**12.** $0.19	**13.** 4.38
_____	_____	_____	_____

Problem Solving

Real World

14. Candice spent $13.55 at the arts and crafts fair. How much money did Candice spend, rounded to the nearest dollar?

_____

15. Mr. Marsh bought 2.25 pounds of American cheese. About how many pounds of cheese did Mr. Marsh buy?

_____

Name _____

Round Decimals

You can use a number line to round whole numbers. You can also use a number line to round decimals.

Round 1.82 to the nearest whole number.

Step 1 Find the whole numbers it is between. 1 < 1.82 < 2

Step 2 Plot the number on a number line. See which whole number it is closest to.

1.82 is closer to 2 than 1.

So, 1.82 rounded to the nearest whole number is 2.

Note: If you are rounding a number with 5 in the tenths place, round the number to the greater whole number.

1.5 rounded to the nearest whole number is 2. However, 1.49 rounds to 1.

Round to the nearest dollar or to the nearest whole number.

1. $1.23	**2.** 3.7	**3.** 7.12	**4.** $5.50
_____	_____	_____	_____
5. $2.89	**6.** 9.2	**7.** $4.49	**8.** 6.51
_____	_____	_____	_____
9. 8.5	**10.** $5.01	**11.** $1.89	**12.** $8.21
_____	_____	_____	_____

Name _____

Round Decimals

Round to the nearest dollar or to the nearest whole number.

1. $3.18 _____	**2.** 4.7 _____	**3.** $7.02 _____	**4.** 8.55 _____
5. $1.89 _____	**6.** 0.2 _____	**7.** $0.75 _____	**8.** 9.09 _____
9. $9.51 _____	**10.** 1.01 _____	**11.** $8.49 _____	**12.** 6.35 _____
13. $0.85 _____	**14.** 5.9 _____	**15.** $1.05 _____	**16.** 4.5 _____
17. $4.15 _____	**18.** 3.65 _____	**19.** $1.99 _____	**20.** 5.52 _____

Problem Solving (Real World)

21. Camden spends $18.25 at the driving range. How much money did Camden spend, rounded to the nearest dollar?

_____

22. Jolie bought 3.75 pounds of turkey at the deli. About how many pounds of turkey did Jolie buy?

_____

Name _____

Place Value to Compare Decimals

Essential Question How can you use place value to compare decimals?

Unlock the Problem (Real World)

Hummingbirds are small, fast, light birds that feed on flowers, trees, and insects. Suppose a particular hummingbird weighs 0.16 ounces. A nickel weighs about 0.18 ounces. Does the hummingbird weigh more or less than a nickel?

- What do you need to do to solve the problem?

_____

- Circle the numbers you need to compare.

Use a place-value chart.

Write each of the decimals on a place-value chart. Be sure to line up each place and the decimal point. Then compare the numbers in each place.

Ones		Tenths	Hundredths
0	.	1	6
0	.	1	8

$0 = 0$ $1 =$ _____ $6 <$ _____

Since 6 ◯ 8, 0.16 ◯ 0.18.

So, the hummingbird weighs _____ a nickel.

Math Talk Mathematical Practices

Explain why you start comparing the decimals by comparing the ones place.

Try This! **Use a place-value chart to compare the decimals.**

Write <, >, or =.

A. 1.32 ◯ 1.34

B. 0.67 ◯ 0.6

C. 0.99 ◯ 0.99

Share and Show

MATH BOARD

1. Use the place-value chart below to compare the decimals. Write <, >, or =.

Ones		Tenths	Hundredths
3	.	0	5
3	.	0	1

3 = 3 0 = _____ 5 ◯ 1

So, 3.05 ◯ 3.01.

Compare the decimals. Write <, >, =.

2. 7.24 ◯ 7.42 | **3.** 8.80 ◯ 8.81 | **4.** 0.11 ◯ 0.11 | **5.** 4.33 ◯ 4.31

On Your Own

Compare the decimals. Write <, >, =.

6. 0.04 ◯ 0.04 | **7.** 1.1 ◯ 1.7 | **8.** 0.34 ◯ 0.36 | **9.** 4.04 ◯ 4.01

10. 9.67 ◯ 9.63 | **11.** 1.4 ◯ 1.42 | **12.** 0.02 ◯ 0.2 | **13.** 5.4 ◯ 5.40

Use a place-value chart to order the decimals from least to greatest.

14. 0.59, 0.51, 0.52 _____

15. 7.15, 7.18, 7.1 _____

16. 1.3, 1.33, 1.03 _____

Problem Solving Real World

17. Jill, Ally, and Maria ran the 50-yard dash. Jill ran the race in 6.87 seconds. Ally ran the race in 6.82 seconds. Maria ran the race in 6.93. Who ran the race the fastest? **Explain** how you can use a place-value chart to find the answer.

_____

_____

_____

Name _____

Place Value to Compare Decimals

You can use a place-value chart to help you compare decimals.

Use a place-value chart to compare the decimals. Write <, >, or =.

4.28 4.23

Step 1 Write both decimals in a place-value chart. Line up each place and the decimal.

Step 2 Compare the numbers in each place, starting with the numbers in the ones place and working your way right.

Ones	.	Tenths	Hundredths
4	.	2	8
4	.	2	3

$4 = 4$ $2 = \underline{2}$ $8 > \underline{3}$

Step 3 Since 8 is greater than 3, 4.28 is greater than 4.23.

So, $4.28 > 4.23$.

1. Use the place-value chart below to compare the decimals. Write <, >, or =.

Ones	.	Tenths	Hundredths
8	.	9	2
8	.	9	7

$8 = 8$ $9 = \_\_\_\_$ $2 < \_\_\_\_$

So, $8.92 < 8.97$.

Compare the decimals. Write <, >, or =.

2. 6.87 ◯ 6.80 **3.** 9.17 ◯ 9.19 **4.** 5.73 ◯ 5.78 **5.** 1.23 ◯ 1.22

6. 2.56 ◯ 2.5 **7.** 3.7 ◯ 3.70 **8.** 7.22 ◯ 7.2 **9.** 4.4 ◯ 4.04

Name _____

Place Value to Compare Decimals

Compare the decimals. Write <, >, or =.

1. 2.12 ◯ 2.2
2. 2.6 ◯ 2.64
3. 2.08 ◯ 2.8
4. 2.73 ◯ 2.77
5. 2.4 ◯ 2.40
6. 2.89 ◯ 2.876
7. 2.98 ◯ 2.09
8. 2.57 ◯ 2.75
9. 0.38 ◯ 0.34
10. 46.2 ◯ 46.20
11. 0.8 ◯ 0.88
12. 25.09 ◯ 25.48

Use a place-value chart to order the decimals from least to greatest.

13. 0.41, 0.49, 0.45

_____

_____

14. 8.95, 8.98, 8.9

_____

_____

15. 2.7, 2.77, 2.07

_____

_____

16. 1.23, 1.27, 1.25

_____

_____

17. 9.9, 9.99, 9.94

_____

_____

18. 3.4, 3.04, 3.44

_____

_____

Problem Solving (Real World)

19. Veronica drank 0.5 liter of water. Hector drank 0.3 liter of water. Who drank less water?

_____

20. Abby spent $6.36 on her lunch and Colby spent $6.63 on his lunch. Who spent less money on lunch—Abby or Colby?

_____

Name _____

Decompose Multiples of 10, 100, 1,000

Essential Question How can you find factors of multiples of 10, 100, and 1,000?

Unlock the Problem

Architects make scale models of buildings before they build the real thing. The height of an actual building is going to be 1,200 feet. The scale model is 12 feet tall. How many times the height of the model is the height of the actual building?

- What do you need to find?

_____

- Circle the numbers you need to use to solve the problem.

You can decompose a multiple of 10, 100, or 1,000 by finding factors.

One Way Use mental math and a pattern.

Decompose 1,200.

$1{,}200 =$ _____ $\times 1$

$1{,}200 =$ _____ $\times 10$

$1{,}200 =$ _____ $\times 100$

So, the building is 100 times the height of the model.

Remember

A multiple of 10, 100, or 1,000 is a number that has a factor of 10, 100, or 1,000.

Another Way Use place value.

Decompose 1,200.

$1{,}200 = 12$ hundreds $= 12 \times$ _____

So, $1{,}200 = 12 \times 100$.

Math Talk Mathematical Practices

Explain the difference between factors and multiples.

- Explain how you use mental math and a pattern to find factors of multiples of 10, 100, or 1,000.

_____

_____

_____

_____

Share and Show

1. Complete the exercise below to decompose 2,800.

   2,800 = _____ × 1

   2,800 = _____ × 10

   2,800 = _____ × 100

2. Complete the exercise below to decompose 930.

   930 = _____ tens = _____ × _____

Decompose each number.

3. 80 = _____

4. 320 = _____

5. 8,000 = _____

On Your Own

Decompose each number.

6. 90 = _____

7. 40 = _____

8. 890 = _____

9. 300 = _____

10. 7,000 = _____

11. 3,700 = _____

Correct the error. Write the correct decomposition.

12. 560 = 56 × 100

    _____

13. 4,300 = 43 × 1,000

    _____

14. 6,000 = 60 × 10

    _____

Problem Solving

15. Jon goes to the bank with $990. How many ten-dollar bills can he get? Show how you found your answer.

    _____

Name _____

Decompose Multiples of 10, 100, 1,000

You can decompose a multiple of 10, 100, or 1,000 by finding its factors.

- To decompose a multiple of 10: rewrite it as the product of 10 and another number.
- To decompose a multiple of 100: rewrite it as the product of 100 and another number.
- To decompose a multiple of 1,000: rewrite it as the product of 1,000 and another number.

Decompose 3,200.

One Way Use mental math and a pattern.

3,200 = 3,200 × 1

3,200 = 320 × 10

3,200 = 32 × 100

So 3,200 = 32 × 100.

Another Way Use place value.

3,200 = 32 hundreds = 32 × 100

So 3,200 = 32 × 100.

1. Complete the exercise below to decompose 3,600.

3,600 = _____ × 1

3,600 = _____ × 10

3,600 = _____ × 100

2. Complete the exercise below to decompose 870.

870 = _____ tens = _____ × _____

Decompose each number.

3. 90 = _____ **4.** 5,600 = _____ **5.** 3,000 = _____

Name _____

Decompose Multiples of 10, 100, 1,000

Decompose each number.

1. 60 = _____
2. 30 = _____
3. 570 = _____
4. 900 = _____
5. 4,000 = _____
6. 2,800 = _____
7. 730 = _____
8. 1,700 = _____
9. 2,000 = _____

Correct the error. Write the correct decomposition.

10. 980 = 98 × 100
    _____
11. 1,700 = 17 × 1,000
    _____
12. 8,000 = 80 × 100
    _____
13. 700 = 70 × 100
    _____
14. 6,400 = 64 × 1,000
    _____
15. 5,000 = 50 × 1,000
    _____
16. 920 = 92 × 100
    _____
17. 7,700 = 77 × 1,000
    _____
18. 280 = 28 × 100
    _____

Problem Solving (Real World)

19. There are 240 students in the middle-school band. The band director is dividing the students into groups of 10. Into how many groups will the band director divide the students?

    _____

Name _____

Number Patterns

Essential Question How can you use multiplication to describe a pattern?

Unlock the Problem (Real World)

You know how to use a rule and a first term to write a sequence. Now, you will describe a sequence using a rule.

- Do the numbers in the sequence increase or decrease?

_____

- Underline the information you need to find.

Describe a pattern.

A scientist counts the number of lily pads in a pond each day. She records the number of lily pads in the table below. How many lily pads will be in the pond on days 5 and 6?

Day	1	2	3	4
Lilly Pads	8	16	32	64

STEP 1 Describe the sequence.

THINK: How do I get from one term to the next?

Try multiplying by 2 since $8 \times 2 = 16$.

_____ _____ _____

8, 16, 32, 64

Math Talk Mathematical Practices

Explain how you know the rule isn't add 8.

Write a rule to describe the number of lily pads in the pond.

RULE: _____.

STEP 2 Find the next two terms in the sequence.

× 2 × 2 × 2 _____ _____

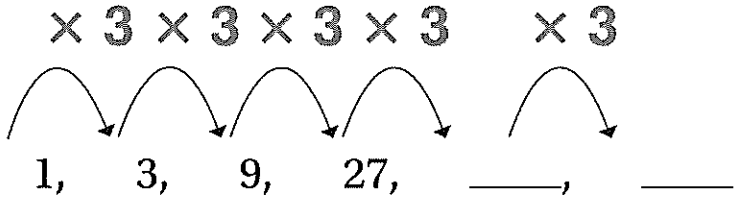
8, 16, 32, 64, _____, _____

So, there will be _____ lily pads on day 5 and _____ lily pads on day 6.

Share and Show

MATH BOARD

1. Find the next two numbers in the pattern below.



Describe the pattern. Then find the next two numbers in the pattern.

2. 1, 2, 4, 8, _____, _____

_____

3. 7, 14, 28, 56, _____, _____

_____

On Your Own

Describe the pattern. Then find the next two numbers in the pattern.

4. 1, 4, 16, 64, _____, _____

_____

5. 2, 6, 18, 54, _____, _____

_____

Determine the pattern and use it to fill in the blanks.

6. 1, 5, 25, _____, 625

7. 3, 6, _____, 24, _____

8. 2, _____, 32, _____, 512

Problem Solving Real World

9. A clothing store starts selling a new type of sneaker. The table shows the number of pairs of sneakers sold in the first four weeks. If the pattern continues, how many pairs of sneakers will the store sell in weeks 5 and 6? **Explain.**

Week	1	2	3	4
Pairs Sold	5	10	20	40

_____

_____

_____

Name _____

Number Patterns

You already know how to use a rule and the first term to write a sequence. Now you will use multiplication to describe a pattern.

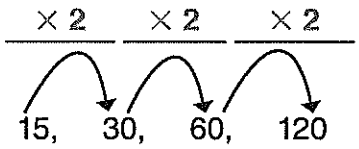
Stephen is saving his money to buy a car. The table shows how much money he has saved at the end of each month. If the pattern continues, how much money will Stephen have saved after months 5 and 6?

Number of Months	1	2	3	4
Total Amount Saved ($)	15	30	60	120

Step 1 Describe the sequence.

Think: How do I get from one term to the next?

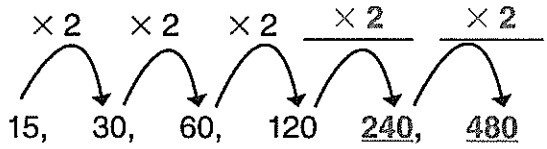
Try multiplying by 2, since $15 \times 2 = 30$.



Step 2 Write a rule that describes how much money Stephen has saved at the end of each month.

Rule: Multiply by 2.

Step 3 Use the rule to find the next two terms in the sequence.



So, at the end of month 5, Stephen will have saved $240.
At the end of month 6, have will have saved $480.

Describe the pattern. Then find the next two numbers in the pattern.

1. 2, 10, 50, _____, _____

2. 2, 6, 18, _____, _____

Name _____

Number Patterns

Describe the pattern. Then find the next two numbers in the pattern.

1. 4, 12, 36, 108, 324, 972
   Multiply by 3.

2. 14, 28, 56, 112, _____, _____
   _____

3. 2, 8, 32, 128, _____, _____
   _____

4. 1, 5, 25, 125, _____, _____
   _____

Determine the pattern and use it to fill in the blanks.

5. 1, 6, 36, _____, 1,296

6. 2, 6, _____, 54, _____

7. 3, 12, _____, _____, 768

8. _____, _____, 36, 108, 324

9. _____, 2, 4, 8, _____

10. 5, 20, _____, 320, _____

Problem Solving (Real World)

11. Pippen works at an aquarium. Each month, she counts the number of fish in one of the aquariums. She records the total number of fish in the table below. If the pattern continues, how many fish will be in the aquarium in Months 6 and 7?

Month	1	2	3	4	5
Number of Fish	4	8	16	32	64

_____

Name _____

Checkpoint

Concepts and Skills

Round to the nearest whole dollar or to the nearest whole number.

1. $7.23 _____

2. 2.89 _____

3. 0.52 _____

4. $9.49 _____

Compare the decimals. Write <, >, or =.

5. 0.6 ◯ 0.60

6. 5.08 ◯ 5.80

7. 8.14 ◯ 8.17

8. 7.37 ◯ 7.32

Read and write the numbers in two other forms.

9. seventy-five million, three hundred thousand, two hundred seven

_____

_____

_____

10. 30,000,000 + 40,000 + 6,000 + 20 + 2

_____

_____

_____

Decompose each number.

11. 20 = _____

12. 740 = _____

13. 6,000 = _____

Problem Solving (Real World)

14. A new music website is keeping track of the number of members that join. The table shows the number of members in the first four days. If the pattern continues, how many members will the website have on day 6? **Explain** how you found your answer.

Day	1	2	3	4
Members	5	15	45	135

_____

_____

_____

15. A particular female Asian elephant weighs 4.63 tons. What is this decimal written in word form?

Ⓐ four and sixty-three tenths

Ⓑ four and sixty-three hundredths

Ⓒ four hundred and sixty-three

Ⓓ four and sixty-three thousandths

16. Joe, Adam, Michael, and Carl all work at an office. Joe earns $15.53 per hour. Adam earns $15.59 per hour. Carl earns $15.95 per hour. Michael earns $15.91. Who earns the most money per hour?

Ⓐ Joe

Ⓑ Adam

Ⓒ Carl

Ⓓ Michael

17. Which number is ninety-eight million, forty thousand, six hundred fifty three written in another form?

Ⓐ 98,040,653

Ⓑ 98,400,653

Ⓒ 98,046,053

Ⓓ 98,40,653

18. Which rule describes the pattern below?

3, 12, 48, 192

Ⓐ Multiply by 2.

Ⓑ Multiply by 3.

Ⓒ Add 9.

Ⓓ Multiply by 4.

Name _____

Add Related Fractions

Essential Question How can you add fractions when one denominator is a multiple of the other?

When you add fractions, you find how many equal-size pieces there are in all. The denominator shows the size of the pieces. To add fractions with denominators that are not the same, first find equivalent fractions with the same denominator.

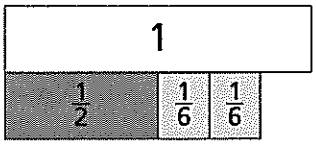
Activity

Materials ■ fraction strips

Find $\frac{1}{2} + \frac{2}{6}$.

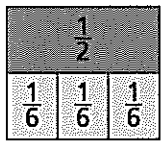
STEP 1 Model the problem.

Think: To add fractions, you need to count equal size pieces. The $\frac{1}{2}$ strip and the $\frac{1}{6}$ strip are different sizes.



STEP 2 Show $\frac{1}{2}$ using $\frac{1}{6}$ strips.

$\frac{1}{2} = \frac{\quad}{6}$



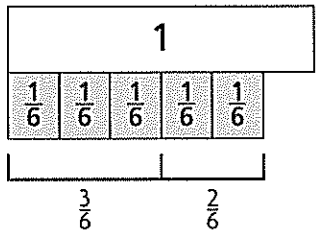
STEP 3 Add. Use the equivalent fraction you found. Find $\frac{3}{6} + \frac{2}{6}$.

How many $\frac{1}{6}$ strips are there?

_____

Write the sum. $\frac{3}{6} + \frac{2}{6} =$ _____

So, $\frac{1}{2} + \frac{2}{6} =$ _____.



- **Describe** how the sizes of the $\frac{1}{2}$ strip and the $\frac{1}{6}$ strip compare. Then describe how the denominators of the fractions $\frac{1}{2}$ and $\frac{1}{6}$ are related.

_____

_____

_____

_____

Math Talk Mathematical Practices

Explain how you know $\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions.

Share and Show

MATH BOARD

1. **Explain** which fraction strips you could use to add $\frac{1}{3}$ and $\frac{3}{6}$.

_____

_____

_____

2. Use fraction strips to add $\frac{1}{4} + \frac{2}{8}$.

$\frac{1}{4} + \frac{2}{8} =$ _____

Add. Use fraction strips to help.

3. $\frac{1}{4} + \frac{1}{2} =$ _____

4. $\frac{1}{2} + \frac{3}{8} =$ _____

5. $\frac{1}{2} + \frac{3}{10} =$ _____

On Your Own

Add. Use fraction strips to help.

6. $\frac{1}{3} + \frac{2}{6} =$ _____

7. $\frac{1}{5} + \frac{3}{10} =$ _____

8. $\frac{3}{8} + \frac{1}{4} =$ _____

9. $\frac{5}{12} + \frac{1}{3} =$ _____

10. $\frac{1}{3} + \frac{8}{12} =$ _____

11. $\frac{8}{10} + \frac{1}{5} =$ _____

Problem Solving Real World

12. Paola used $\frac{1}{4}$ of a carton of eggs today and $\frac{4}{12}$ of the carton yesterday. What fraction of the carton of eggs did she use in all? **Explain** how you found your answer.

_____

_____

Name _____

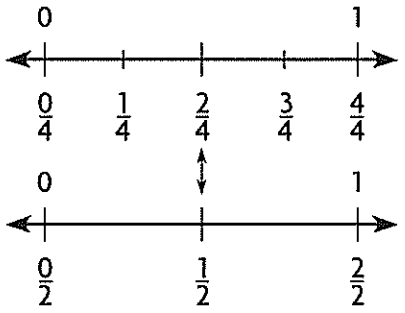
Add Related Fractions

You can add fractions with different denominators using a number line.
First find an equivalent fraction so that both fractions have the same denominator.

Add $\frac{1}{4} + \frac{1}{2}$. Use a number line to help.

Step 1 Draw a number line from 0 to 1. Divide it into 4 equal parts. Label the number line in fourths.

Step 2 Draw another number line directly below the first number line. Line up the 0s and 1s. Divide the second number line into 2 equal parts. Label it.



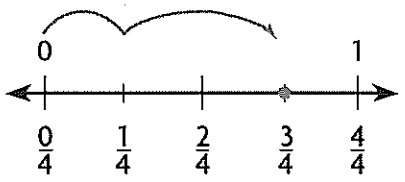
Step 3 Find how many fourths are equal to $\frac{1}{2}$.

$$\frac{1}{2} = \frac{2}{4}$$

Step 4 Add. Use the equivalent fraction for $\frac{1}{2}$.

$$\frac{1}{4} + \frac{1}{2} = \frac{1}{4} + \frac{2}{4}$$
$$= \frac{3}{4}$$

So, $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$.



Add. Use a number line to help.

1. $\frac{3}{4} + \frac{1}{8} =$ ____

2. $\frac{1}{6} + \frac{2}{3} =$ ____

3. $\frac{2}{5} + \frac{1}{10} =$ ____

4. $\frac{4}{8} + \frac{1}{2} =$ ____

5. $\frac{1}{2} + \frac{1}{6} =$ ____

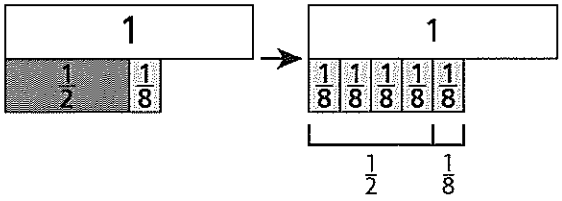
6. $\frac{4}{12} + \frac{1}{4} =$ ____

Name _____

Add Related Fractions

Add. Use fraction strips to help.

1. $\frac{1}{2} + \frac{1}{8} =$ $\frac{5}{8}$



2. $\frac{1}{3} + \frac{2}{9} =$ _____

3. $\frac{2}{10} + \frac{1}{5} =$ _____

4. $\frac{2}{3} + \frac{1}{6} =$ _____

5. $\frac{2}{8} + \frac{1}{4} =$ _____

6. $\frac{4}{12} + \frac{2}{3} =$ _____

7. $\frac{4}{10} + \frac{1}{2} =$ _____

8. $\frac{1}{2} + \frac{3}{6} =$ _____

Problem Solving (Real World)

9. The Lin family bought a dozen bagels. They ate $\frac{1}{4}$ of the bagels today and $\frac{5}{12}$ of the bagels yesterday. What fraction of the bagels did they eat in all? Explain how you found your answer.

_____

_____

_____

_____

_____

10. The Smith family ate $\frac{3}{5}$ of a pizza for dinner and $\frac{2}{10}$ of the pizza for lunch the next day. How much of the pizza did they eat in all? Explain how you found your answer.

_____

_____

_____

_____

_____

Name _____

Subtract Related Fractions

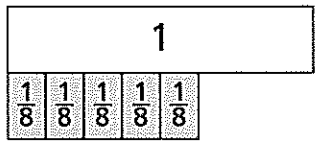
Essential Question How can you subtract fractions when one denominator is a multiple of the other?

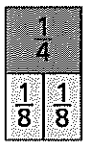
When you subtract fractions, you must use equal-size pieces. To subtract fractions with different denominators, first find equivalent fractions with the same denominator. You can also compare to find the difference.

Activity

Materials ■ fraction strips

Find $\frac{5}{8} - \frac{1}{4}$.





One Way Find an equivalent fraction.

Model the problem.

Think: You need to subtract $\frac{1}{4}$ from $\frac{5}{8}$, but the $\frac{1}{4}$ strip and the $\frac{1}{8}$ strips are different sizes.

Show $\frac{1}{4}$ using $\frac{1}{8}$ strips.

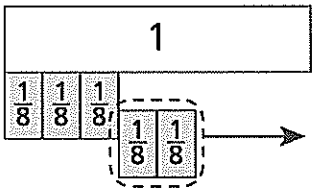
$\frac{1}{4} = \frac{\quad}{8}$

Subtract. Use the equivalent fraction you found.

Find $\frac{5}{8} - \frac{2}{8}$.

Write the difference. $\frac{5}{8} - \frac{2}{8} =$ _____

So, $\frac{5}{8} - \frac{1}{4} =$ _____



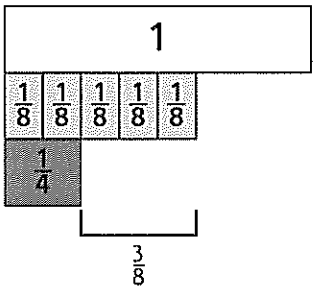
Another Way Compare to find the difference.

Model the problem.

Think: The $\frac{1}{4}$ strip is the same size as two $\frac{1}{8}$ strips.

Compare the $\frac{1}{4}$ strip to the five $\frac{1}{8}$ strips. Find the difference.

$\frac{5}{8} - \frac{1}{4} =$ _____.



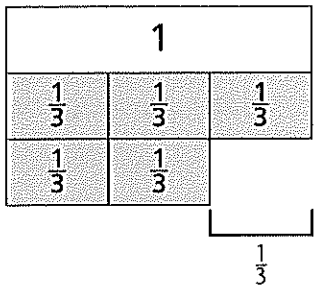
Math Talk Mathematical Practices

Explain how the $\frac{1}{4}$ strip is related to the $\frac{1}{8}$ strip. Then describe how the denominators 4 and 8 are related.

Share and Show

MATH BOARD

1. A student subtracted $\frac{2}{3}$ from 1 whole as shown at the right. Explain the student's method. Then find the difference.



_____

_____

_____

_____

2. Use fraction strips to subtract $\frac{5}{6} - \frac{1}{2}$.

$\frac{5}{6} - \frac{1}{2} =$ _____

Subtract. Use fraction strips to help.

3. $\frac{1}{2} - \frac{3}{8} =$ _____

4. $1 - \frac{2}{5} =$ _____

5. $\frac{2}{4} - \frac{2}{12} =$ _____

On Your Own

Subtract. Use fraction strips to help.

6. $\frac{4}{5} - \frac{2}{10} =$ _____

7. $\frac{7}{8} - \frac{3}{4} =$ _____

8. $\frac{5}{6} - \frac{2}{3} =$ _____

9. $\frac{7}{10} - \frac{2}{5} =$ _____

10. $\frac{2}{6} - \frac{1}{3} =$ _____

11. $\frac{6}{8} - \frac{1}{2} =$ _____

Problem Solving Real World

12. Boris had $\frac{2}{3}$ of a book left to read. He read $\frac{1}{6}$ of the book today. What fraction of the book does he have left to read now? Explain how you found your answer.

_____

_____

Name _____

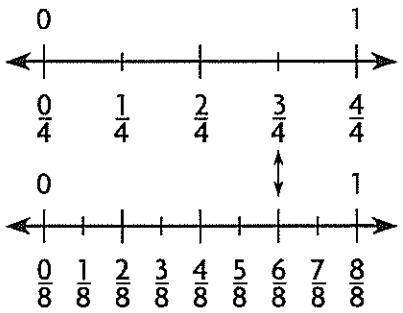
Subtract Related Fractions

You can subtract fractions with different denominators using a number line. First find an equivalent fraction so that both fractions have the same denominator.

Subtract $\frac{3}{4} - \frac{1}{8}$. Use a number line to help.

Step 1 Draw a number line from 0 to 1. Divide it into 4 equal parts. Label the number line in fourths.

Step 2 Draw another number line directly below the first number line. Line up the 0s and 1s. Divide the second number line into 8 equal parts. Label it.



Step 3 Find how many eighths are equal to $\frac{3}{4}$.

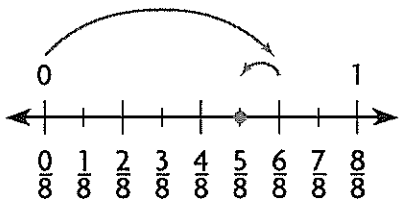
$$\frac{3}{4} = \frac{6}{8}$$

Step 4 Add. Use the equivalent fraction for $\frac{3}{4}$.

$$\frac{3}{4} - \frac{1}{8} = \frac{6}{8} - \frac{1}{8}$$

$$= \frac{5}{8}$$

So, $\frac{3}{4} - \frac{1}{8} = \frac{5}{8}$.



Subtract. Use a number line to help.

1. $\frac{5}{6} - \frac{1}{3} =$ ____

2. $\frac{1}{2} - \frac{1}{4} =$ ____

3. $\frac{5}{8} - \frac{1}{2} =$ ____

4. $\frac{6}{10} - \frac{2}{5} =$ ____

5. $\frac{7}{12} - \frac{1}{3} =$ ____

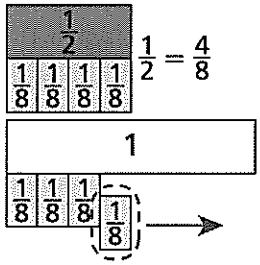
6. $\frac{6}{8} - \frac{3}{4} =$ ____

Name _____

Subtract Related Fractions

Subtract. Use fraction strips to help.

1. $\frac{1}{2} - \frac{1}{8} = \frac{3}{8}$



2. $\frac{5}{6} - \frac{1}{3} =$ _____

3. $1 - \frac{3}{5} =$ _____

4. $\frac{3}{4} - \frac{3}{12} =$ _____

5. $\frac{3}{5} - \frac{2}{10} =$ _____

6. $\frac{7}{8} - \frac{2}{4} =$ _____

7. $\frac{4}{6} - \frac{2}{3} =$ _____

8. $1 - \frac{2}{3} =$ _____

Problem Solving (Real World)

9. Fabia buys $\frac{5}{8}$ pound of red grapes and $\frac{1}{4}$ pound of green grapes. How many more pounds of red grapes does she buy? Explain how you found your answer.

10. Geraldo has $\frac{9}{12}$ mile left to hike to reach the end of the trail. He hikes $\frac{2}{3}$ mile. What fraction of a mile does he have left to hike? Explain how you found your answer.

Name _____

Compare Fraction Products

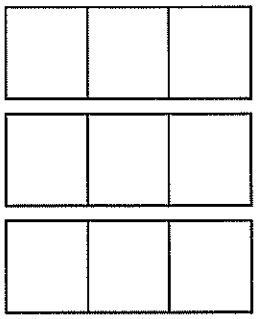
Essential Question How does the size of the product compare to the size of each factor when multiplying fractions in real-world situations?

Unlock the Problem (Real World)

One Way Use a model.

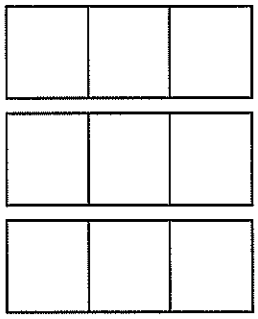
A. Serena uses $\frac{2}{3}$ yard of fabric to make a pillow. How much fabric does she need to make 3 pillows?

- Shade the model to show 3 groups of $\frac{2}{3}$.
- Write an expression for three groups of $\frac{2}{3}$: _____ × _____.
- What can you say about the product when $\frac{2}{3}$ is multiplied by a whole number? Write *greater than* or *less than*. The product is _____ $\frac{2}{3}$.



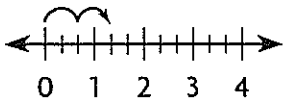
B. Serena has 3 yards of fabric. She uses $\frac{2}{3}$ of it to make a blanket. How much fabric does she use to make the blanket?

- There are 3 wholes. Each represents one yard.
- Shade $\frac{2}{3}$ of each whole.
- Write an expression for $\frac{2}{3}$ of three wholes: _____ × _____
- What can you say about the product when 3 is multiplied by a fraction less than 1? Write *greater than* or *less than*. The product is _____ 3.



Another Way Use a number line.

A. Show $\frac{2}{3} \times 2$.



B. Show $\frac{2}{3} \times 3$.

Complete each statement with *greater than* or *less than*.

- The product of $\frac{2}{3}$ and 2 is _____ $\frac{2}{3}$.
- The product of a whole number greater than 1 and $\frac{2}{3}$ will be _____ the whole number factor.

Math Talk Mathematical Practices

What if a different fraction was multiplied by 2 and 3? Would your statements still be true? **Explain.**

Share and Show

MATH BOARD

1. Complete the statement with *greater than* or *less than*.

$2 \times \frac{3}{4}$ will be _____ $\frac{3}{4}$.

Complete each statement with *greater than* or *less than*.

2. $3 \times \frac{2}{5}$ will be _____ 3.

3. $3 \times \frac{1}{3}$ will be _____ $\frac{1}{3}$

On Your Own

Complete each statement with *greater than* or *less than*.

4. $3 \times \frac{3}{8}$ will be _____ $\frac{3}{8}$.

5. $\frac{5}{6} \times 5$ will be _____ $\frac{5}{6}$.

6. $\frac{3}{10} \times 6$ will be _____ $\frac{3}{10}$.

7. $4 \times \frac{5}{9}$ will be _____ 4.

Problem Solving Real World

8. Celia wants to sew 4 pillows. She needs $\frac{3}{8}$ yard of fabric for each pillow. Will she need more than $\frac{3}{8}$ yard or less than $\frac{3}{8}$ yard of fabric to make all the pillows? Explain.

9. Rohan walks $\frac{3}{4}$ mile to school each day. After 5 days, will Rohan have walked more than 5 miles or less than 5 miles to school? Explain.

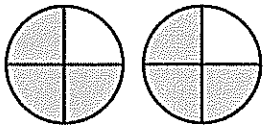
Name _____

Compare Fraction Products

When a fraction less than one is multiplied by a whole number, is the product less than or greater than the fraction?

Is the product of $\frac{3}{4} \times 2$ less than or greater than $\frac{3}{4}$?

Step 1 Show two groups of $\frac{3}{4}$.



The model shows $\frac{6}{4}$ shaded.

Step 2 Compare. The product $\frac{6}{4}$ is greater than $\frac{3}{4}$.

So, the product of $\frac{3}{4} \times 2$ is greater than $\frac{3}{4}$.

When a whole number is multiplied by a fraction less than one, is the product less than or greater than the whole number?

Is the product of $3 \times \frac{3}{5}$ less than or greater than 3?

Step 1 Show three groups of $\frac{3}{5}$.

The model shows $\frac{9}{5}$ shaded.

Step 2 Compare. The product $\frac{9}{5}$ is less than 3.

So, the product of $3 \times \frac{3}{5}$ is less than 3.

Complete each statement with *greater than* or *less than*.

1. $2 \times \frac{5}{6}$ will be _____ $\frac{5}{6}$.

2. $\frac{3}{8} \times 2$ will be _____ 2.

3. $3 \times \frac{2}{5}$ will be _____ 3.

4. $\frac{2}{3} \times 4$ will be _____ $\frac{2}{3}$.

Name _____

Compare Fraction Products

Complete each statement with *greater than* or *less than*.

1. $\frac{2}{4} \times 3$ will be less than 3.

2. $\frac{3}{8} \times 2$ will be _____ $\frac{3}{8}$.

3. $4 \times \frac{5}{6}$ will be _____ $\frac{5}{6}$.

4. $2 \times \frac{1}{4}$ will be _____ 2.

5. $3 \times \frac{4}{9}$ will be _____ $\frac{4}{9}$.

6. $\frac{7}{10} \times 2$ will be _____ $\frac{7}{10}$.

7. $3 \times \frac{3}{5}$ will be _____ 3.

8. $5 \times \frac{2}{3}$ will be _____ $\frac{2}{3}$.

Problem Solving Real World

9. Jen is making 3 loaves of banana bread. She needs $\frac{3}{4}$ cup sugar for each loaf. Will she need more or less than 3 cups of sugar to make all 3 loaves? Explain.

10. Tafua exercises for $\frac{5}{6}$ hour every day. After 2 days, will Tafua have exercised for less than or more than $\frac{5}{6}$ hour? Explain.

Name _____

Repeated Subtraction with Fractions

Essential Question How can you use repeated subtraction to solve problems involving division with fractions?

Unlock the Problem (Real World)

Mr. Jones is making snacks for his family. He has 3 cups of almonds and is dividing them into $\frac{1}{2}$-cup portions. How many portions can he make?

You have used repeated subtraction to divide whole numbers. Now, you will use repeated subtraction to solve a problem involving division by a fraction.

- What do you need to find?

_____

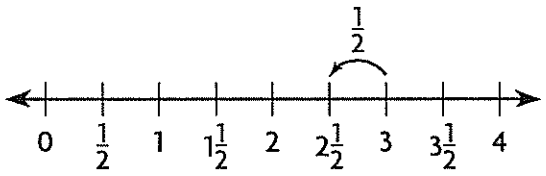
_____

- What other operation can you use instead of repeated subtraction to solve the problem?

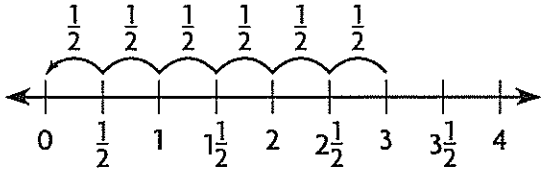
_____

Use repeated subtraction to divide 3 by $\frac{1}{2}$.

STEP 1 Start at 3 and count back $\frac{1}{2}$.



STEP 2 Subtract by $\frac{1}{2}$ until you reach 0 or get as close to it as possible.



Math Talk Mathematical Practices

Explain why you count the number of groups of $\frac{1}{2}$.

STEP 3 Find the number of times you counted back by $\frac{1}{2}$.

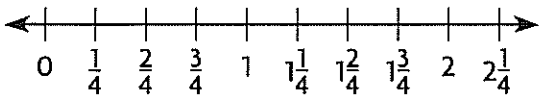
You counted _____ groups of $\frac{1}{2}$ to reach 0.

So, Mr. Jones can make _____ half-cup portions of almonds.

Share and Show

MATH BOARD

1. Use repeated subtraction and the number line to find $2 \div \frac{1}{4}$.



Start subtracting at _____.

Count back by groups of _____.

How many groups did you count to reach 0? _____

Use repeated subtraction to divide.

2. $2 \div \frac{1}{3}$

_____

3. $5 \div \frac{1}{2}$

_____

4. $1 \div \frac{1}{8}$

_____

On Your Own

Use repeated subtraction to divide.

5. $1 \div \frac{1}{5}$

_____

6. $2 \div \frac{1}{2}$

_____

7. $4 \div \frac{1}{3}$

_____

8. $2 \div \frac{1}{5}$

_____

9. $7 \div \frac{1}{2}$

_____

10. $3 \div \frac{1}{4}$

_____

Problem Solving Real World

11. You are putting raisins into snack bags. You have 3 cups of raisins. You want to put $\frac{1}{3}$ cup of raisins in each bag. How many bags can you make?

_____

12. Margaret is cutting straws that are 4 inches long into $\frac{1}{2}$-inch pieces. She has two straws. She needs twenty $\frac{1}{2}$-inch pieces. Does she have enough to cut 20 pieces? **Explain.**

_____

_____

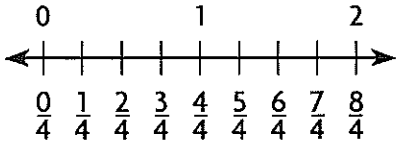
Name _____

Repeated Subtraction with Fractions

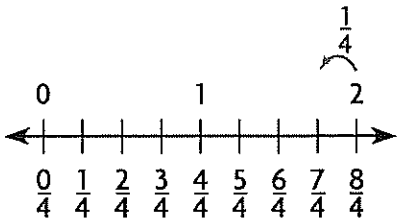
You can use repeated subtraction to divide whole numbers.
You can also use repeated subtraction to divide a whole number by a fraction.

Use repeated subtraction to find $2 \div \frac{1}{4}$.

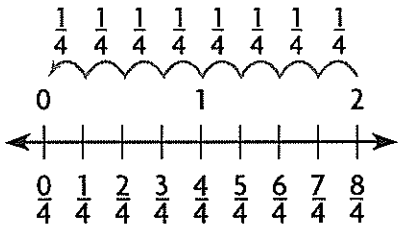
Step 1 Draw a number line from 0 to 2. Divide it into fourths.



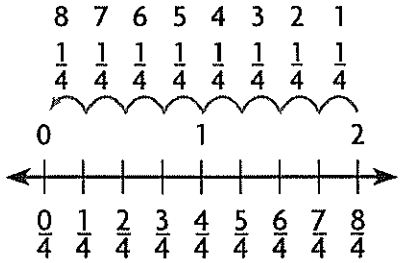
Step 2 Start at 2. Count back by $\frac{1}{4}$ to subtract.



Step 3 Keep subtracting $\frac{1}{4}$ until you reach 0 or get as close to it as possible.



Step 4 Count the number of times you counted back by $\frac{1}{4}$. You counted back 8 groups of $\frac{1}{4}$.



So, $2 \div \frac{1}{4} = 8$.

Use repeated subtraction to divide.

1. $3 \div \frac{1}{2}$ _____

2. $2 \div \frac{1}{5}$ _____

3. $1 \div \frac{1}{4}$ _____

4. $4 \div \frac{1}{3}$ _____

5. $2 \div \frac{1}{6}$ _____

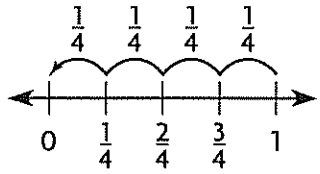
6. $2 \div \frac{1}{8}$ _____

Name _____

Repeated Subtraction with Fractions

Use repeated subtraction to divide.

1. $1 \div \frac{1}{4}$



_____

2. $2 \div \frac{1}{8}$

_____

3. $4 \div \frac{1}{2}$

_____

4. $3 \div \frac{1}{3}$

_____

5. $3 \div \frac{1}{5}$

_____

6. $2 \div \frac{1}{6}$

_____

7. $6 \div \frac{1}{2}$

_____

8. $4 \div \frac{1}{4}$

_____

Problem Solving (Real World)

9. Harold has 4 cups of trail mix. He wants to give $\frac{1}{3}$ cup trail mix to each camper in his group. There are 8 campers in his group. Does he have enough trail mix for all the campers? Explain.

_____

_____

_____

_____

_____

_____

10. Marita is cutting rolls of ribbon that are 3 feet long into $\frac{1}{2}$-foot pieces. She needs fifteen $\frac{1}{2}$-foot pieces for a project. She has 3 rolls of ribbon. Does she have enough to cut 15 pieces? Explain.

_____

_____

_____

_____

_____

_____

Name _____

Fractions and Division

Essential Question How can you write division problems as fractions?

Division and fractions both show sharing equal numbers of things or making equal-size groups. You can write division problems as fractions.

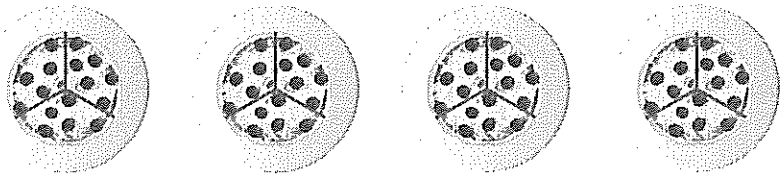
Unlock the Problem (Real World)

Mavi and her 2 sisters want to share 4 small pizzas equally. How much pizza will each person have?

- How many people want to share the pizzas?

_____

Think: What is 4 divided by 3, or $4 \div 3$?



Each pizza is divided into _____ equal slices.

How many slices are in 4 pizzas? _____

What fraction of the pizza is each slice? _____

How many $\frac{1}{3}$-size slices does each sister get? _____

What fraction of the pizzas does each sister get? _____

So, $4 \div 3$ is the same as $\frac{4}{3}$.

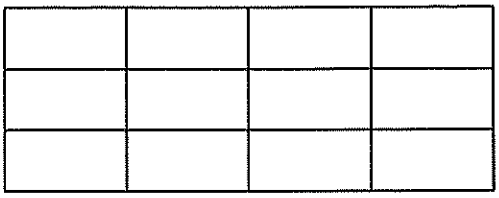
Math Talk Mathematical Practices

How can you write $\frac{4}{3}$ as a mixed number?

Share and Show

MATH BOARD

1. Alex baked a pan of corn bread and cut it into 12 equal-size pieces. Alex and his 3 sisters want to share the pieces equally.



What division problem can you write to solve the problem? _____

Write the division problem as a fraction. _____

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

2. $6 \div 2$	**3.** $1 \div 4$	**4.** $1 \div 3$	**5.** $32 \div 8$
_____	_____	_____	_____

On Your Own

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

6. $5 \div 6$	**7.** $3 \div 2$	**8.** $1 \div 8$	**9.** $2 \div 4$
_____	_____	_____	_____
10. $12 \div 3$	**11.** $9 \div 4$	**12.** $11 \div 2$	**13.** $8 \div 6$
_____	_____	_____	_____

Problem Solving Real World

14. Stefan and his 2 friends want to share 16 muffins equally. Will each friend get more than or less than 5 whole muffins? **Explain** how you know.

_____

_____

_____

Name _____

Fractions and Division

You can use division to make equal shares or to make equal-sized groups. You can use a fraction to show division.

Write the division problem as a fraction.

$3 \div 4$

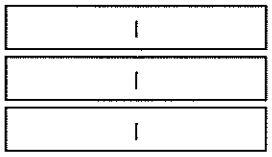
Think of a division sign as a fraction bar.

numerator ÷ denominator ⟷ $\frac{\text{numerator}}{\text{denominator}}$

You can use fraction strips to model the relationship between division and fractions.

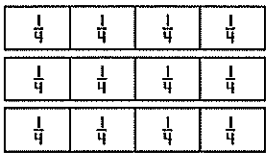
Step 1

Begin with 3 wholes.



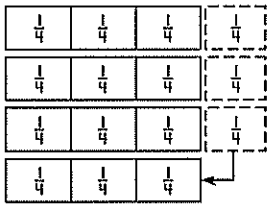
Step 2

Think of each whole as 4 fourth-size pieces.



Step 3

Arrange the fourth-size pieces into 4 equal groups.



There are 3 fourth-size pieces in each equal group.

So, $3 \div 4$ can be written as $\frac{3}{4}$.

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

1. $9 \div 3$ _____

2. $1 \div 6$ _____

3. $2 \div 8$ _____

4. $5 \div 4$ _____

5. $7 \div 2$ _____

6. $12 \div 8$ _____

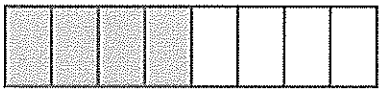
Name _____

Fractions and Division

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

1. $8 \div 2$

$\frac{8}{2}$, 4



2. $10 \div 2$

3. $6 \div 5$

4. $9 \div 6$

5. $2 \div 5$

6. $2 \div 8$

7. $24 \div 6$

8. $9 \div 1$

9. $15 \div 2$

Problem Solving Real World

10. There are 13 bagels in a baker's dozen. Hillary, Mark, and Tam share the bagels equally. Will each friend get more than or fewer than 4 whole bagels? Explain.

Name _____

Checkpoint

Concepts and Skills

Complete each statement with *greater than* or *less than*.

1. $3 \times \frac{3}{9}$ will be _____ 3.

2. $\frac{7}{8} \times 3$ will be _____ $\frac{7}{8}$.

Add or subtract. Use fraction strips to help.

3. $\frac{1}{2} + \frac{2}{10} =$ _____

4. $\frac{1}{4} + \frac{5}{8} =$ _____

5. $\frac{4}{6} + \frac{1}{3} =$ _____

6. $1 - \frac{5}{6} =$ _____

7. $\frac{7}{8} - \frac{1}{4} =$ _____

8. $\frac{3}{5} - \frac{4}{10} =$ _____

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

9. $7 \div 8 =$ _____

10. $8 \div 5 =$ _____

11. $16 \div 3 =$ _____

Use repeated subtraction to divide.

12. $3 \div \frac{1}{5} =$ _____

13. $4 \div \frac{1}{2} =$ _____

14. $6 \div \frac{1}{3} =$ _____

Problem Solving (Real World)

15. Manny had $\frac{3}{4}$ of his paper written. He wrote another $\frac{1}{8}$ of the paper today. What fraction of the paper does he have left to write now? **Explain** how you found your answer.

_____

_____

_____

Fill in the bubble completely to show your answer.

16. Mr. Martin is going to paint 5 small rooms. He needs $\frac{3}{4}$ gallon of paint for each room. How much paint will he need to paint all of the rooms?

Ⓐ less than $\frac{3}{4}$ gallon

Ⓑ more than $\frac{3}{4}$ gallon

Ⓒ exactly $\frac{3}{4}$ gallon

Ⓓ exactly 5 gallons

17. A chef is preparing individual-size pies. She has 4 cups of strawberries to put in the pies. She wants to put $\frac{1}{4}$ cup of strawberries in each pie. How many pies can she make?

Ⓐ 4

Ⓑ 8

Ⓒ 14

Ⓓ 16

18. Which shows the division problem $6 \div 4$ written as a fraction or mixed number?

Ⓐ $\frac{4}{6}$

Ⓑ $1\frac{1}{4}$

Ⓒ $1\frac{2}{4}$

Ⓓ $2\frac{2}{4}$

19. Pablo ate $\frac{1}{4}$ of a pizza yesterday and $\frac{3}{8}$ of the pizza today. What fraction of the pizza did he eat in all?

Ⓐ $\frac{5}{8}$

Ⓑ $\frac{4}{12}$

Ⓒ $\frac{4}{8}$

Ⓓ $\frac{3}{8}$

Name _____

Locate Points on a Grid

Essential Question How can you use ordered pairs to locate points on a grid?

An ordered pair is a pair of numbers that names a point on a grid. The first number shows how many units to move horizontally. The second number shows how many units to move vertically.

(2 , 4)

Move 2 units right from 0. Then move 4 units up.

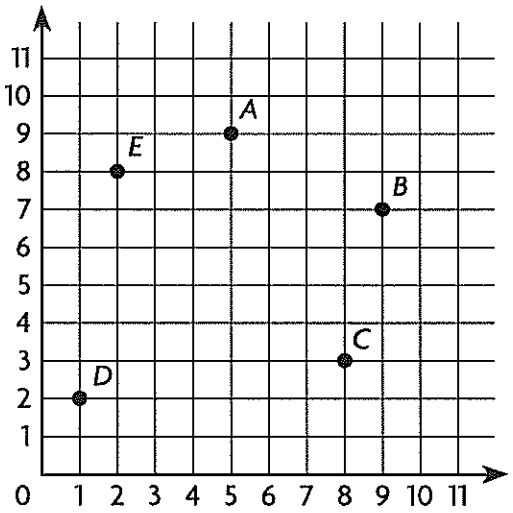
Unlock the Problem (Real World)

At the airport, passengers travel from one terminal to another in shuttle buses. The shuttle buses travel in a route that begins at Terminal A. Where is Terminal A?

Count units on the grid to find out.

- Start at zero.
- Move right 5 units.
- From there, move up 9 units.

Terminal A is located at (5, 9).



Try This!

What terminal is located at (8, 3)? Explain how you know.

_____

_____

_____

_____

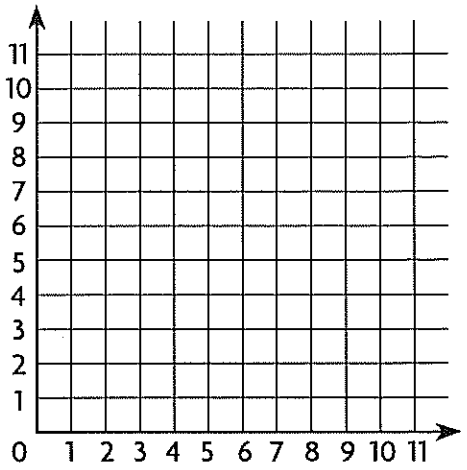
Math Talk Mathematical Practices

Explain why (3, 6) and (6, 3) are two different ordered pairs.

Share and Show

MATH BOARD

1. To graph the point (6, 3), where do you start? In which direction and how many units will you move first? What will you do next? Describe the steps and record them on the grid.

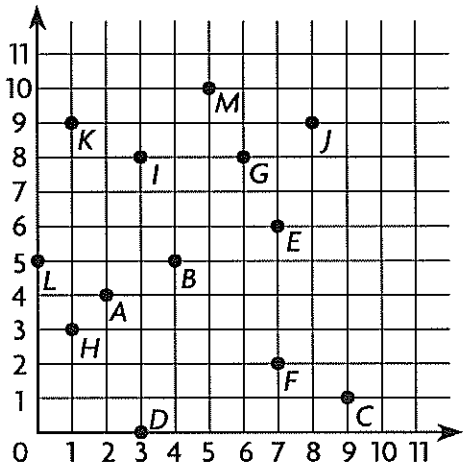


_____

_____

Use the grid for Exercises 2–5. Write the ordered pair for each point.

2. *A*	3. *B*	4. *C*	5. *D*
_____	_____	_____	_____



On Your Own

Use the grid for Exercises 6–13.
Write the ordered pair for each point.

6. *E*	7. *F*	8. *G*	9. *H*
_____	_____	_____	_____

Write the point for each ordered pair.

10. (3, 8)	11. (8, 9)	12. (1, 9)	13. (0, 5)
_____	_____	_____	_____

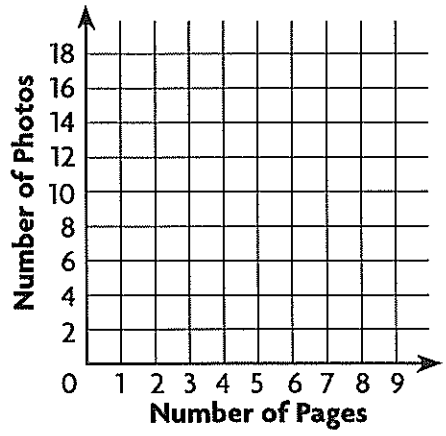
Problem Solving

Real World

There are four photos on each page of a photo album. Complete the table. Write the data in the table as ordered pairs. Then graph the ordered pairs on the grid. Use the number of pages as the first number and the number of photos as the second number in the ordered pair.

14.

Number of Pages	1		3	4
Number of Photos	4	8		



_____

Name _____

Locate Points on a Grid

A map has horizontal and vertical lines that make a grid. You can name a point on the grid using an **ordered pair** of numbers.

The first number tells how many units to move right from zero. → (1, 5) ← The second number tells how many units to move up from zero.

Write the ordered pair for the location of the park.

Step 1 Start at zero. Move right. Count the number of units until you are directly below the park.

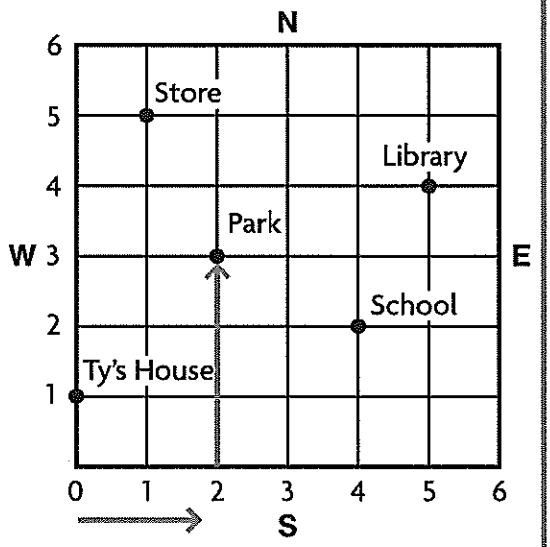
You move right 2 units.

Step 2 Move up. Count the number of units until you reach the park.

You move up 3 units.

Step 3 You move right 2 units and up 3 units, so the ordered pair is (2, 3).

So, the park is located at (2, 3) on the map.



Use the grid. Write the ordered pair for each point.

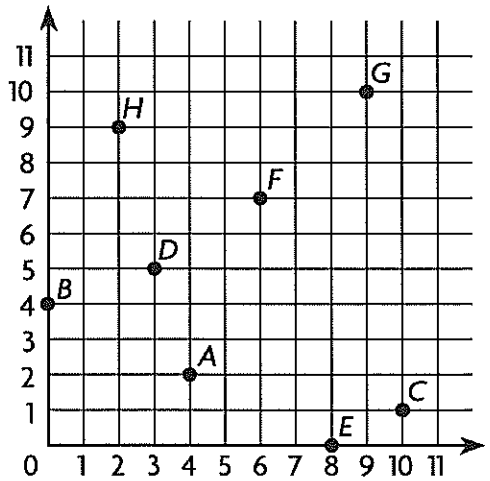
1. *A* **2.** *B* **3.** *C* **4.** *D*

_____ _____ _____ _____

Use the grid. Write the point for each ordered pair.

5. (8, 0) **6.** (9, 10) **7.** (6, 7) **8.** (2, 9)

_____ _____ _____ _____

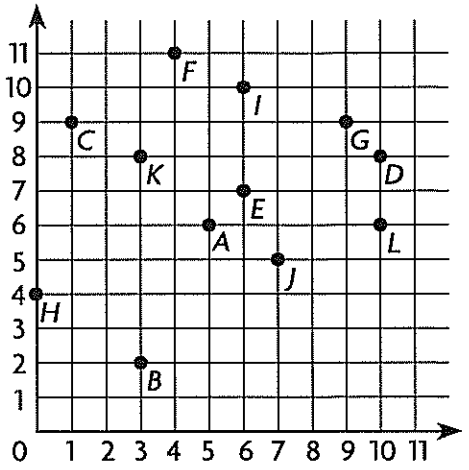


Name _____

Locate Points on a Grid

Use the grid for 1–12.

Write the ordered pair for each point.



1. A (5, 6)

2. B _____

3. C _____

4. D _____

5. E _____

6. F _____

Write the point for each ordered pair.

7. (9, 9) _____

8. (0, 4) _____

9. (6, 10) _____

10. (7, 5) _____

11. (3, 8) _____

12. (10, 6) _____

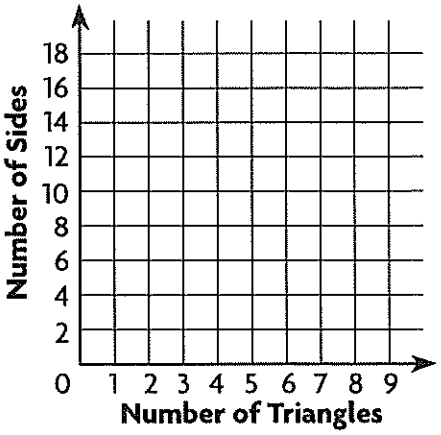
Problem Solving Real World

There are 3 sides in a triangle. Complete the table. Write ordered pairs from the table. Then graph the ordered pairs on the grid.

13.

Number of Triangles	1	2		4
Number of Sides	3		9	

_____



Name _____

Area and Tiling

Essential Question How can you use tiling to find the area of a rectangle?

Unlock the Problem (Real World)

Rhonda is tiling the floor of her new sunroom. The diagram shows the layout of the tiles. Each tile measures 4 square feet. What is the area of Rhonda's sunroom floor?

- Underline what you are asked to find.
- Circle the information you will use to solve the problem.

To find the area of the sunroom floor, you can combine the areas of the half tiles and the whole tiles.

Find the area of the sunroom floor.

STEP 1 Find the area of the half tiles.

Count the number of half tiles. _____

1 tile = 4 square feet, so 1 half tile = 4 ÷ 2 or _____ square feet.

Multiply the number of half tiles by _____ square feet to find the area of the half tiles:

_____ × _____ = _____ square feet

STEP 2 Find the area of the whole tiles.

Find the number of whole tiles: $b \times h$ = _____ × _____ = _____ tiles

Since the area of 1 tile is _____ square feet, multiply the number of whole tiles by _____ to find the area of the whole tiles.

_____ × _____ = _____ square feet

STEP 3 Find the total area.

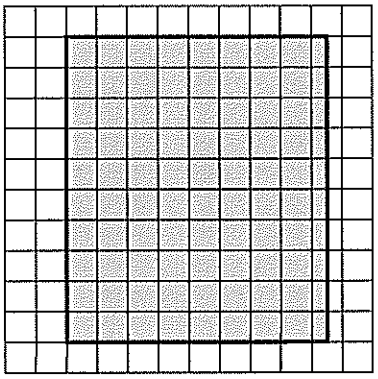
Add the areas of the half tiles and whole tiles.

half tiles ↓ **whole tiles** ↓

_____ + _____ = _____ square feet

So, the area of Rhonda's sunroom floor is _____ square feet.

Rhonda's Sunroom Floor



1 tile = 4 square feet

Remember

The formula for the area of a rectangle is $A = b \times h$ or $l \times w$.

Math Talk Mathematical Practices

Explain how to find the area of 6 half tiles if 1 whole tile is 9 square inches.

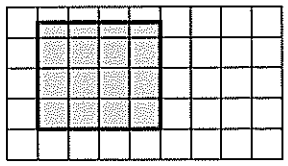
Share and Show

MATH BOARD

1. Find the area of the shaded shape.

STEP 1 Find the area of the half squares:

_____ half squares × _____ square yards = _____ square yards



1 square = 16 square yards

STEP 2 Find the area of the whole squares:

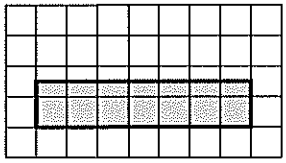
_____ × _____ = _____ squares

_____ squares × _____ square yards = _____ square yards

STEP 3 Find the total area: _____ + _____ = _____ square yards

Find the area of each shaded shape. Write the area in square units.

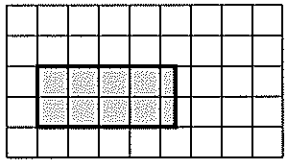
2.



1 square = 4 square yards

_____

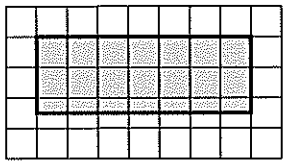
3.



1 square = 9 square feet

_____

4.



1 square = 4 square meters

_____

On Your Own

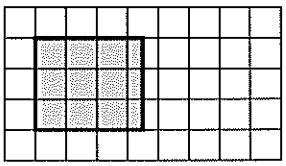
Find the area of each shaded shape. Write the area in square units.

5.

1 square = 9 square miles

_____

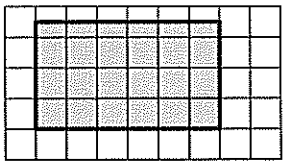
6.



1 square = 16 square meters

_____

7.



1 square = 25 square meters

_____

Problem Solving Real World

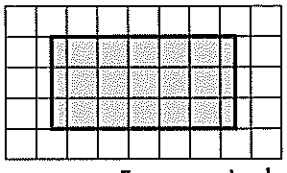
8. A mosaic table top is shown. Each square has an area of 5 square inches. What is the area of the table top? **Explain.**

_____

_____

_____

Table Top



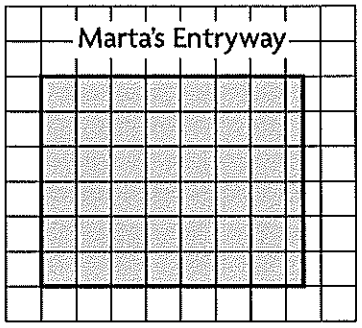
1 square = 5 square inches

Name _____

Area and Tiling

In the model, whole tiles are shaded, and some half tiles are shaded. You can combine the areas of half tiles and whole tiles to find the total area.

Find the area of the entryway.
Write the area in square feet.



1 square = 4 square feet

Step 1 Count the number of whole tiles. There are 42 whole tiles.

Step 2 Count the number of half tiles. There are 6 half tiles.

Think: 2 half tiles = 1 whole tile
6 half tiles = 3 whole tiles

Step 3 Use the total number of whole tiles to find the area.

42 + 3 = 45 whole tiles

Think: 1 tile = 4 square feet

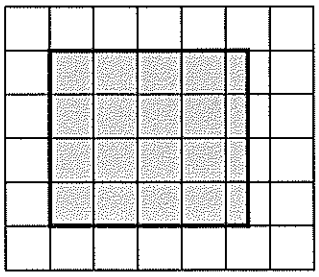
Multiply the number of whole tiles by 4 to find the area.

45 × 4 = 180

So, the area of Marta's entryway is 180 square feet.

Find the area of each shaded shape. Write the area in square units.

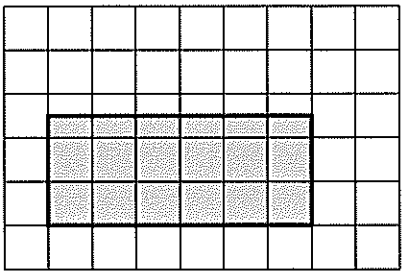
1.



1 square = 4 square feet

_____

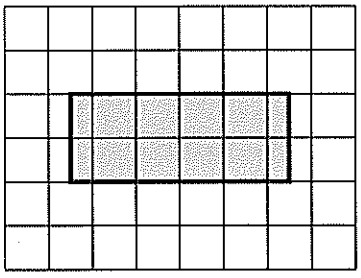
2.



1 square = 9 square meters

_____

3.



1 square = 16 square miles

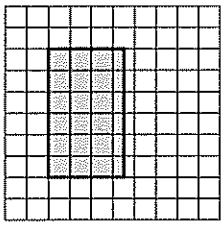
_____

Name _____

Area and Tiling

Find the area of the shaded shape. Write the area in square units.

1.



1 square = 4 square inches

Area of the half squares:

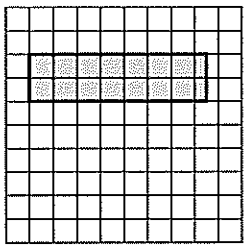
6 half squares × 2 square inches = 12 square inches

Area of the whole squares:

18 whole squares × 4 square inches = 72 square inches

Total area: 12 + 72 = 84 square inches

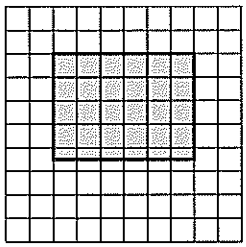
2.



1 square = 4 square meters

_____

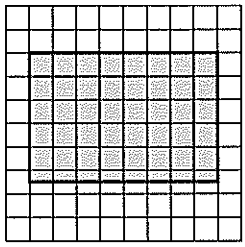
3.



1 square = 4 square miles

_____

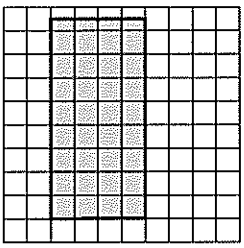
4.



1 square = 16 square feet

_____

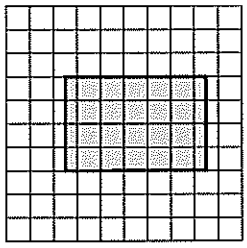
5.



1 square = 25 square yards

_____

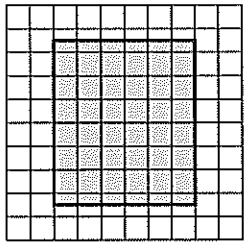
6.



1 square = 9 square inches

_____

7.



1 square = 16 square miles

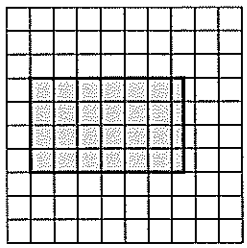
_____

Problem Solving Real World

8. A deck is in the shape of a rectangle. What is the area of the deck if each square shown in the diagram is 9 square feet? Explain how you found the area.

_____

_____



1 square = 9 square feet

Name _____

Multiply Three Factors

Essential Question How can you find the product of three factors?

Unlock the Problem (Real World)

You can use properties of multiplication to help make multiplication of three factors easier.

Sam ships 4 boxes of car model kits to Toy Mart. Each box contains 16 cartons, with 6 kits in each carton. How many car model kits does Sam ship?

- Underline what you are asked to find.
- Circle the numbers you will use to solve the problem.
- What operation can you use to solve the problem?

_____

Example Find $4 \times (16 \times 6)$.

STEP 1

Simplify the problem. Rewrite $4 \times (16 \times 6)$ as a product of two factors.

$4 \times (16 \times 6) = 4 \times (\_\_\_\_ \times 16)$ Commutative Property

$= (4 \times \_\_\_\_) \times 16$ Associative Property

$= \_\_\_\_ \times 16$

So, $4 \times (16 \times 6) = 24 \times 16$.

STEP 2

Multiply.

$$\begin{array}{r} 16 \\ \times\ 24 \\ \hline \square \quad \leftarrow 4 \times 16 \\ +\ \square \quad \leftarrow 20 \times 16 \\ \hline \square \quad \leftarrow \text{Add.} \end{array}$$

So, Sam ships _____ car model kits.

Try This!

$(18 \times 8) \times 3 = 18 \times (\_\_\_\_ \times \_\_\_\_)$ Associative Property

$= 18 \times \_\_\_\_$

$= \_\_\_\_$

Math Talk Mathematical Practices

Explain how using properties makes it easier to multiple three factors.

Share and Show

MATH BOARD

1. Find the product of $7 \times (6 \times 13)$.

STEP 1 Simplify the problem.

Rewrite $7 \times (6 \times 13)$ as a product of two factors.

$7 \times (6 \times 13) = (\_\_\_\_ \times \_\_\_\_) \times 13$

Associative Property

$= \_\_\_\_ \times \_\_\_\_$

STEP 2 Multiply.

$$\begin{array}{r} 13 \\ \times\ 42 \\ \hline \end{array}$$

Find each product.

2. $3 \times (14 \times 3) = \_\_\_\_$

3. $2 \times (4 \times 13) = \_\_\_\_$

4. $(16 \times 6) \times 3 = \_\_\_\_$

On Your Own

Find each product.

5. $7 \times (17 \times 4) = \_\_\_\_$

6. $(18 \times 4) \times 6 = \_\_\_\_$

7. $9 \times (17 \times 5) = \_\_\_\_$

8. $(5 \times 26) \times 3 = \_\_\_\_$

9. $9 \times (19 \times 2) = \_\_\_\_$

10. $(21 \times 4) \times 6 = \_\_\_\_$

Problem Solving Real World

11. There are 3 basketball leagues. Each league has 8 teams. Each team has 13 players. How many players are there in all 3 leagues?

_____

12. There are 8 boxes of tennis balls. There are 24 cans of tennis balls in each box. There are 3 tennis balls in each can. How many tennis balls are there in all?

_____

Name _____

Multiply Three Factors

Step 1

Simplify the problem. Rewrite $2 \times (14 \times 6)$ as a product of two factors.

$2 \times (14 \times 6) = 2 \times (\underline{6} \times 14)$ Commutative Property

$= (2 \times \underline{6}) \times 14$ Associative Property

$= \underline{12} \times 14$

So, $2 \times (14 \times 6) = 12 \times 14$.

Step 2

Multiply.

$$\begin{array}{rl} 12 & \\ \times\ 14 & \\ \hline 48 & \leftarrow 4 \times 12 \\ +\ 120 & \leftarrow 10 \times 12 \\ \hline 168 & \leftarrow \text{Add.} \end{array}$$

So, $2 \times (14 \times 6) = 168$.

Remember

Commutative Property of Multiplication
You can multiply factors in any order and still get the same product.
Example: $2 \times 3 = 3 \times 2$

Associative Property of Multiplication
You can group factors in any order and still get the same product.
Example:
$2 \times (3 \times 4) = (2 \times 3) \times 4$

Find each product.

1. $3 \times (16 \times 4) =$ _____

2. $(4 \times 14) \times 6 =$ _____

3. $5 \times (13 \times 5) =$ _____

4. $(16 \times 7) \times 3 =$ _____

5. $7 \times (18 \times 6) =$ _____

6. $(12 \times 8) \times 6 =$ _____

Name _____

Multiply Three Factors

Find each product.

1. $6 \times (4 \times 17)$

$6 \times (4 \times 17) = (\underline{6} \times \underline{4}) \times \underline{17}$

$= \underline{24} \times \underline{17}$

$= \underline{408}$

$$\begin{array}{r} {\scriptstyle 1\ \ 2} \\ 17 \\ \times\ 24 \\ \hline {\scriptstyle 1}\,68 \\ +340 \\ \hline 408 \end{array}$$

2. $(28 \times 8) \times 3 =$ _____

3. $(13 \times 9) \times 4 =$ _____

4. $(6 \times 26) \times 3 =$ _____

5. $6 \times (15 \times 7) =$ _____

6. $2 \times (8 \times 18) =$ _____

7. $(4 \times 21) \times 4 =$ _____

8. $8 \times (4 \times 33) =$ _____

9. $3 \times (44 \times 6) =$ _____

10. $(36 \times 9) \times 5 =$ _____

Problem Solving Real World

11. There are 9 rows of 28 chairs set up for a play. A ticket to the play costs $4. How much money will be made on ticket sales if all the seats are sold for the play?

_____

12. Three families are sharing the cost of renting a canoe for 7 days. The cost for each family is $14 per day. What is the total cost of renting the canoe for 7 days from the rental shop?

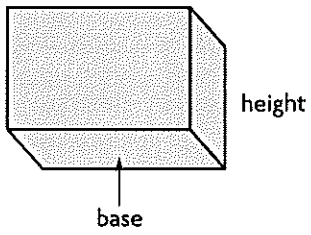
_____

Name _____

Find Area of the Base

Essential Question How can you find the area of the base of a rectangular prism?

Connect The base of a rectangle is different than the base of a rectangular prism. The base of a rectangle is a side, but the base of a rectangular prism is a rectangle. To find the area of a rectangle, use the formula $A = b \times h$ or $l \times w$.



Unlock the Problem

Real World

Example

Ana is making a diorama for a class project. The diorama is in the shape of a rectangular prism. She wants to paint the bottom of the diorama. What is the area of the base?

- What shape is the base of the diorama?

_____

- What are the base and height of the base of the diorama?

_____

The base shape is a rectangle.

Use a formula to find the area.

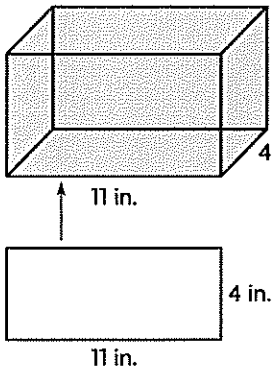
$A = b \times h$

base = _____ inches

height = _____ inches

A = _____ × _____

A = _____ square inches



So, the area of the base of the diorama is _____ square inches.

Math Talk Mathematical Practices

Why would multiplying 11 by 5 give an incorrect answer for the area of the base?

Remember

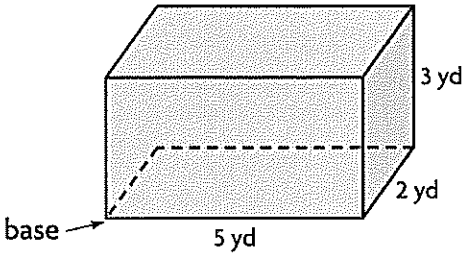
Area of a rectangle:
$A = b \times h$ or $l \times w$

Area of a square: $A = s \times s$

Share and Show

MATH BOARD

1. Find the area of the base of the rectangular prism.



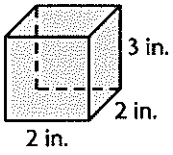
The base shape is a _____.

length = _____ yards, width = _____ yards

A = _____ × _____ = _____ square yards

So, the area of the base is _____ square yards.

Find the area of the base of the rectangular prism.

2. 

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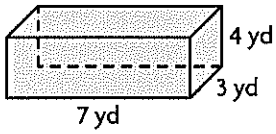
3. 

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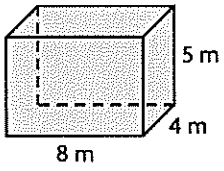
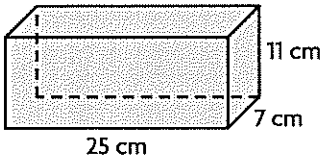
4. 

_____

On Your Own

Find the area of the base of the rectangular prism.

5. 

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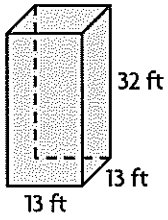
6. 

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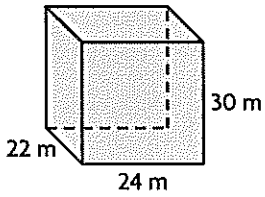
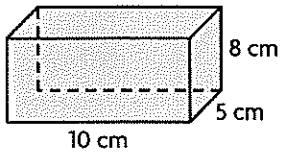
7. 

_____

Problem Solving Real World

8. Julio makes sugar cubes for horses. Each sugar cube edge is 1 centimeter in length. He packs the sugar cubes in the box shown without gaps. Julio says he can fit 80 sugar cubes in the bottom layer. Is he correct? Explain.



_____

_____

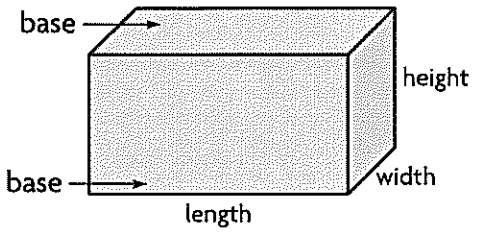
_____

_____

Name _____

Find Area of the Base

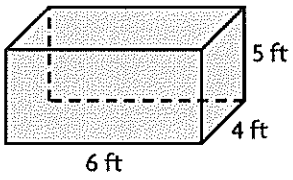
A **rectangular prism** is a solid figure that has three-dimensions: length, width, and height. A rectangular prism has two **bases.** The bases are the same size and shape and are opposite each other. The base shape of a rectangular prism is a rectangle or a square.



You can use the area formulas for a rectangle and a square to find the area of the base of a rectangular prism.

Find the area of the base of the rectangular prism.

Step 1 Identify the base shape.



The length is 6 feet.

The width is 4 feet.

The base shape is a rectangle.

Step 2 Find the area of the base shape.

$A = l \times w$ Think: Use the area formula for a rectangle.

$= 6 \times 4$

$= 24$ square feet

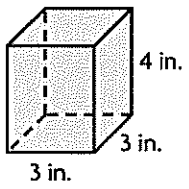
So, the area of the base is 24 square feet.

Remember

Area of a rectangle:
$A = b \times h$ or $A = l \times w$
Area of a square:
$A = s \times s$

Find the area of the base of the rectangular prism.

1.



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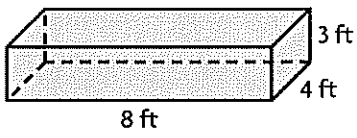
2.



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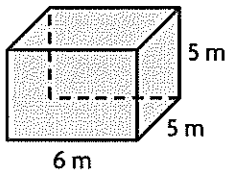
3.



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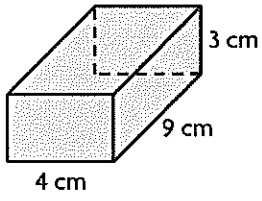
4.



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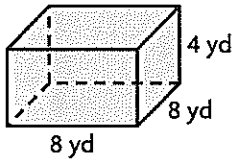
5.



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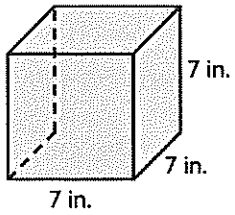
6.



_____

Name _____

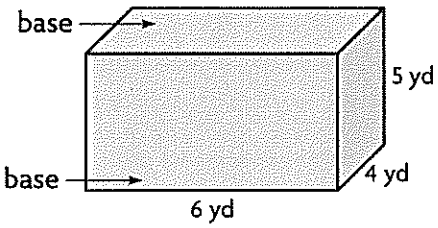
Find Area of the Base

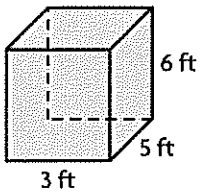
Find the area of the base of the rectangular prism.

1. $A = l \times w$

$A = \underline{6} \times \underline{4}$

$A = \underline{24 \text{ square yards}}$



2. 

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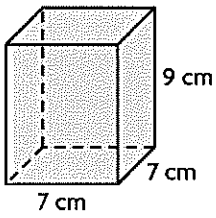
3. 

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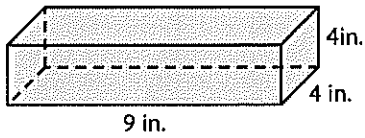
4. 

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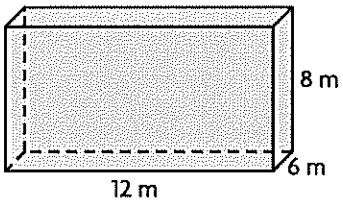
5. 

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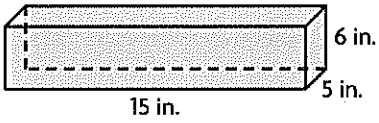
6. 

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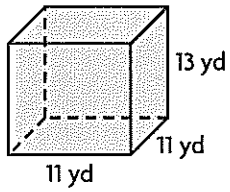
7. 

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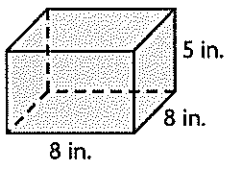
Problem Solving (Real World)

8. Mr. Patell is packing square tiles in the box shown without gaps or overlaps. Each tile lies flat and measures 1 inch on a side. Mr. Patell says he can fit 64 tiles in the bottom layer. Is he correct? Explain.



_____

_____

Name _____

Checkpoint

Concepts and Skills

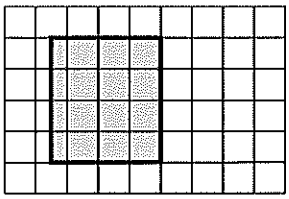
Find each product.

1. $(13 \times 8) \times 5 =$ _____

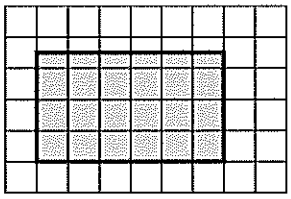
2. $7 \times (12 \times 8) =$ _____

3. $4 \times (17 \times 3) =$ _____

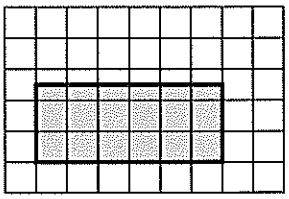
Find the area of the shaded shape. Write the area in square units.

4. 
1 square = 4 square yards

_____

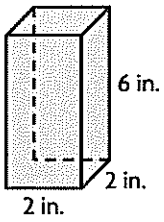
5. 
1 square = 16 square feet

_____

6. 
1 square = 25 square meters

_____

Find the area of the base of the rectangular prism.

7. 

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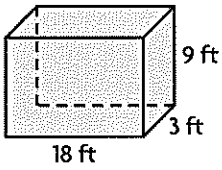
8. 

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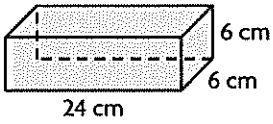
9. 

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Problem Solving (Real World)

10. There are 6 grades competing in a spelling bee. Each grade has 10 teams. Each team has 4 members. How many members are competing in the spelling bee?

_____

Fill in the bubble completely to show your answer.

11. There are 9 crates of oranges. There are 18 boxes of oranges in each crate. There are 6 bags of oranges in each box. How many bags of oranges are there in all?

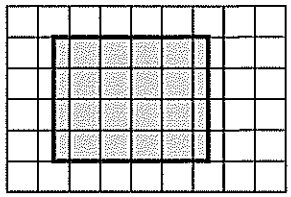
Ⓐ 108

Ⓑ 162

Ⓒ 972

Ⓓ 1152

12. A small tiled balcony is shown. Each tile is 9 square inches. What is the area of the shaded section in square inches?



1 square = 9 square inches

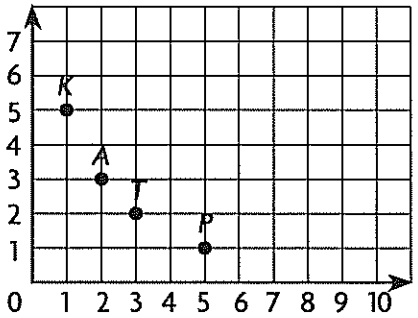
Ⓐ 20 square inches

Ⓑ 144 square inches

Ⓒ 162 square inches

Ⓓ 180 square inches

13. Which ordered pair names point *A* on the grid?



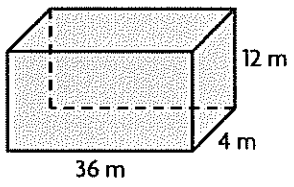
Ⓐ (1, 5)

Ⓑ (2, 3)

Ⓒ (3, 2)

Ⓓ (5, 1)

14. What is the area of the base of the rectangular prism?



Ⓐ 40 square meters

Ⓑ 48 square meters

Ⓒ 144 square meters

Ⓓ 432 square meters