65. The chart below shows an expression evaluated for hour different values of x.

$5^2+5+5=25+10=35$

x	x^2+x+5
1	7
2	11
6	47
7	61
5	35

$7 \cdot 5$, so not prime

Josiah concluded that for all positive values of x, x^2+x+5 produces a prime number. Which value of x serves as a counterexample to prove Josiah's conclusion false?

because 35 not prime

A. 5

B. 11

C. 16

D. 21

66. John's solution to an equation is shown below.

A. Multiplication Property of Equality

B. Zero Product Property of Multiplication

C. Commutative Property of Multiplication

D. Distributive Property of Multiplication over Addition

ZPP

If $a \cdot b = 0$, then $a=0$ or $b=0$.

Which property of real numbers did John use for Step 2?

Given: $x^2+5x+6=0$

Step 1: $(x+2)(x+3)=0$

Step 2: $x+2=0$ or $x+3=0$

Step 3: $x=-2$ or $x=-3$

67. Stan's solution to an equation is shown below.

Given: $n + 8(n + 20) = 110$

Step 1: $n + 8n + 20 = 110$

Step 2: $9n + 20 = 110$

Step 3: $9n = 110 - 20$

Step 4: $9n = 90$

Step 5: $\frac{9n}{9} = \frac{90}{9}$

Step 6: $n = 10$

Which statement about Stan's solution is true?

A. Stan's solution is correct.

B. Stan made a mistake in Step 1.

C. Stan made a mistake in Step 3.

D. Stan made a mistake in Step 5.

★ Stan did not distribute the 8 properly. See correction above.

68. When is this statement true?

The opposite of a number is less than the original number.

A. This statement in never true.

B. This statement is always true.

C. This statement is true for positive numbers.

D. This statement is true for negative numbers.

69. What is the y-intercept of the graph of $4x + 2y = 12$?

A. -4

B. -2

C. 6

D. 12

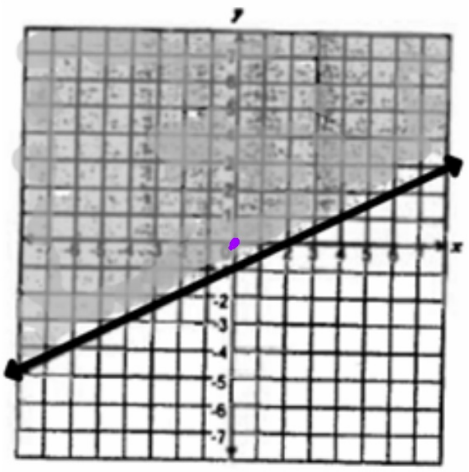
Plug zero in for X.

$4(0)+2y=12$

$\frac{2y}{2}=\frac{12}{2}$

$y=6$

70. Which inequality is shown on the graph below?



A. $y < \frac{1}{2}x - 1$

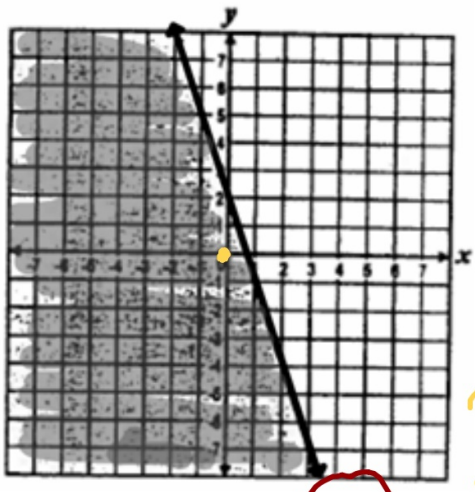
B. $y \leq \frac{1}{2}x - 1$ $0 \leq -1$

C. $y > \frac{1}{2}x - 1$

D. $y \geq \frac{1}{2}x - 1$ $0 \geq -1$

$y = \frac{1}{2}x - 1$

71. Which inequality does the shaded region of the graph represent?



x-int ✓ $x = \frac{2}{3}$

y-int ✓ $y = 2$

Narrows it to either A or B.

A. $3x + y \leq 2$

B. $3x + y \geq 2$

~~C. $3x + y \leq -2$~~

~~D. $3x + y \geq -2$~~

Pick a point. How about (0,0)?

A. $0 + 0 \leq 2$

$0 \leq 2$

True ✓

B. $0 + 0 \geq 2$

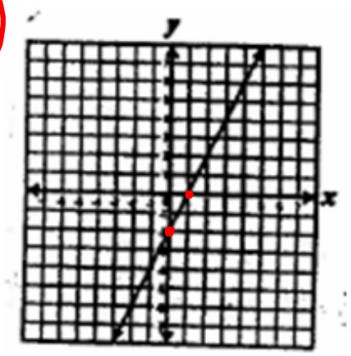
$0 \geq 2$

False.

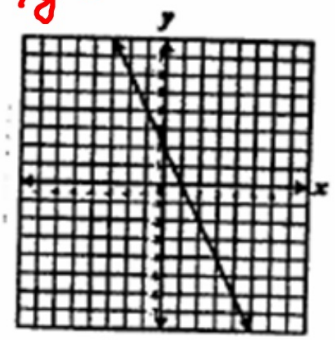
72. Which best represents the graph of $y = 2x - 2$?

slope ↑ y-int ↑

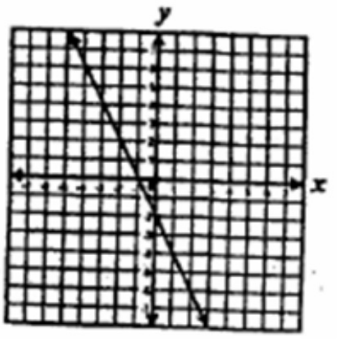
A.



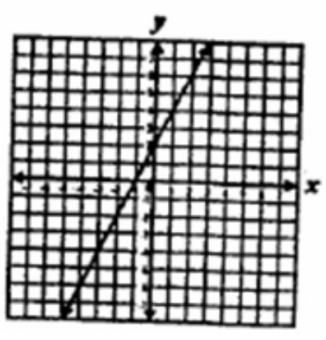
B.



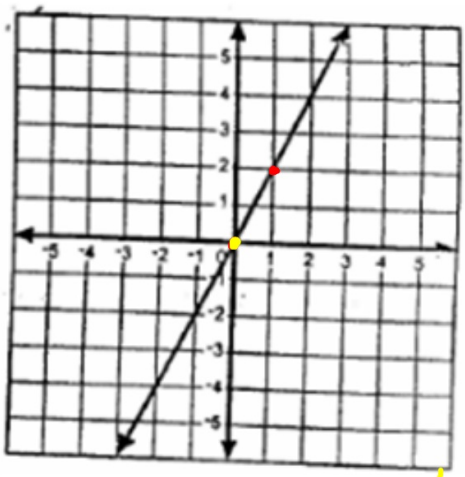
C.



D.



73. Which equation best represents the graph below?



Count slope. $\frac{\text{rise}}{\text{run}} = \frac{2}{1}$

A. $y = x$

B. $y = 2x$

C. $y = x + 2$

D. $y = 2x + 2$

y-int = 0

74. Which point lies on the line defined by $3x + 6y = 2$?

A. $(0, 2)$

B. $(0, 6)$

C. $\left(1, -\frac{1}{6}\right)$

D. $\left(1, -\frac{1}{3}\right)$

$3(1) + 6\left(-\frac{1}{6}\right) = 2$

$3 + (-1) = 2$

$2 = 2$ ✓

75. What is the equation of the line that has a slope of 4 and passes through the point (3, -10)?

x, y

A. $y = 4x - 22$
B. $y = 4x + 22$
C. $y = 4x - 43$
D. $y = 4x + 43$

A. slope = 4

B. $y = mx + b$

$-10 = 4(3) + b$

$-10 = 12 + b$

$-12 \quad -12$

$-22 = b$

C. $y = 4x - 22$

76. The data in the table shows the cost of renting a bicycle by the hour, including a deposit.

x y

Hours (h)	Cost in dollars (c)
2	15
5	30
8	45

x, y
(2, 15)
(5, 30)

If hours, h, were graphed on the horizontal axis and cost, c, were graphed on the vertical axis, what would the equation of a line be that fits the data? Could just plug in, or:

A. $c = 5h$
B. $c = \frac{1}{5}h + 5$
C. $c = 5h + 5$
D. $c = 5h - 5$

A. slope $= \frac{30-15}{5-2} = \frac{15}{3} = 5$

B. $y = mx + b$

$15 = 5(2) + b$

$15 = 10 + b$

$-10 \quad -10$

$5 = b$

C. $y = 5x + 5$

$C = 5h + 5$

77. Some ordered pairs for a linear function of x are given in the table below.

x	y
1	1
3	7
5	13
7	19

Which of the following equations was used to generate the table above? Plug in, or use, say (1,1) and (3,7).

A. $y = 2x + 1$
B. $y = 2x - 1$
C. $y = 3x - 2$
D. $y = 4x - 3$

A. slope: $\frac{7-1}{3-1} = \frac{6}{2} = 3$

B. $y = mx + b$
$1 = 3(1) + b$
$-3 \quad -3$
$-2 = b$

C. $y = 3x - 2$

78. The equation of the line l is $6x + 5y = 3$, and the equation of line q is $5x - 6y = 0$. Which statement about the two lines is true?

Note: Opposite reciprocal slopes, so $\perp$.

A. Lines l and q have the same y-intercept.
B. Lines l and q are parallel.
C. Lines l and q have the same x-intercept.
D. Lines l and q are perpendicular.

$6x + 5y = 3$
$-6x \quad -6x$
$\frac{5y}{5} = \frac{-6x+3}{5}$
$y = -\frac{6}{5}x + \frac{3}{5}$

$5x - 6y = 0$
$-5x \quad -5x$
$\frac{-6y}{-6} = \frac{-5x}{-6}$
$y = \frac{5}{6}x$

79. Which equation represents a line that is parallel to $y = -\frac{5}{4}x + 2$?

A. $y = -\frac{5}{4}x + 1$ same slope

B. $y = -\frac{4}{5}x + 2$

C. $y = \frac{4}{5}x + 3$

D. $y = \frac{5}{4}x + 4$

80. What is the solution to this system of equations?

$y = -3x - 2$

$6x + 2y = -4$

A. (0, 2) ✗

B. (1, -5)

C. No solution

D. Infinitely many solutions

*Note: (1, -5) worked, but it turns out these were the same equation.

$-5 = (-3)(1) - 2$

$-5 = -3 - 2$

$-5 = -5$ ✓

$6(1) + 2(-5) = -4$

$6 + (-10) = -4$

$-4 = -4$ ✓

$6x + 2y = -4$

$-6x \quad -6x$

$\frac{2y}{2} = \frac{-6x - 4}{2}$

$y = -3x - 2$

same line