means multiply

41. What is the product of $\frac{x^2-1}{x+1}$ and $\frac{x+3}{3x-3}$ expressed in simplest form?

A. x C. $x+3$

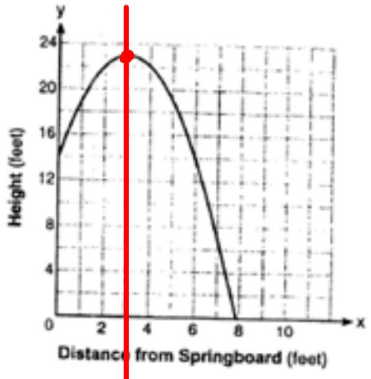
B. $\frac{x}{3}$ D. $\frac{x+3}{3}$

Difference of 2 squares.

$$\frac{(x^2-1)}{(x+1)} \cdot \frac{(x+3)}{(3x-3)} = \frac{(x+1)(x-1)}{(x+1)} \cdot \frac{(x+3)}{3(x-1)} = \frac{x+3}{3}$$

G.C.F.

42. A swim team member performs a dive from a 14-foot high springboard. The parabola shows the path of her dive. Men's Diving Gold Medal



$x = 3$

Which equation represents the axis of symmetry? (goes through the vertex)

A. $x = 3$ C. $x = 23$

B. $y = 3$ D. $y = 23$

Attention: For this to work out, this exponent had to be changed to a 2.

43. Which expression represents $\frac{2x^2-12x}{x-6}$ in simplest form?

A. 0
B. $2x$
C. $4x$
D. $2x+2$

G.C.F.

$$\frac{2x^2-12x}{x-6} = \frac{2x(x-6)}{(x-6)} = 2x$$

44. Consider the graph of the equation $y = ax^2 + bx + c$, when $a \neq 0$. If a is multiplied by 3, what is true of the graph of the resulting parabola?

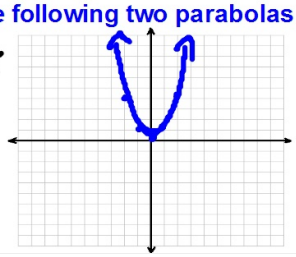
A. The vertex is 3 units above the vertex of the original parabola.
B. The new parabola is 3 units to the right of the original parabola.
C. The new parabola is wider than the original parabola.
D. The new parabola is narrower than the original parabola.

thinner than $y=x^2$

Note: Let's just compare the following two parabolas to get an idea of the effect.

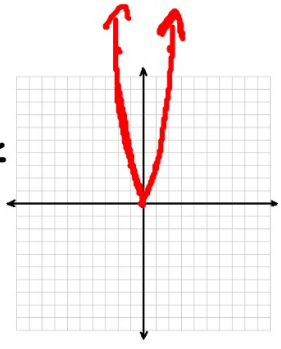
$y=x^2$

x	y
0	0
1	1
-1	1
2	4
-2	4

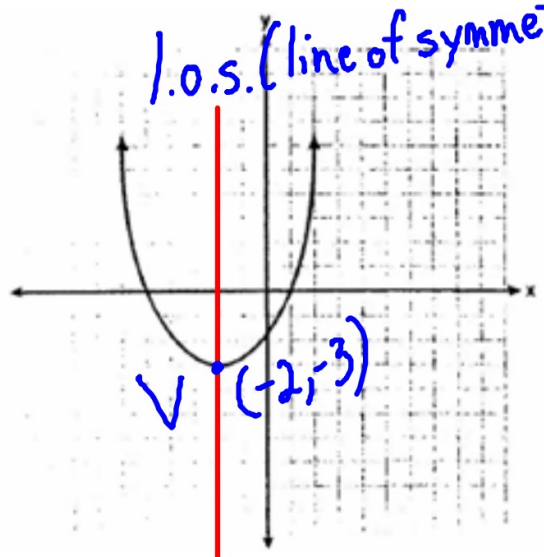


$y=3x^2$

x	y
0	0
1	3
-1	3
2	12
-2	12



45. What are the vertex and the axis of symmetry of the parabola shown in the diagram below?



A. The vertex is (-2, -3) and the axis of symmetry is $x = -2$.

B. The vertex is (-2, -3) and the axis of symmetry is $y = -2$.

C. The vertex is (-3, -2) and the axis of symmetry is $y = -2$.

D. The vertex is (-3, -2) and the axis of symmetry is $x = -2$.

46. What is the product of $\frac{4x}{x-1}$ and $\frac{x^2-1}{3x+3}$ expressed in simplest form?

mult.

A. $\frac{4x}{3}$

B. $\frac{4x^2}{3}$

C. $\frac{4x^2}{3(x+1)}$

D. $\frac{4(x+1)}{3}$

Diff. of 2 squares

$$\frac{4x}{(x-1)(3x+3)} \cdot \frac{(x^2-1)}{} = \frac{4x}{(x-1)3(x+1)} \cdot \frac{(x+1)(x-1)}{} = \frac{4x}{3}$$

G.C.F.

Distributive Prop. Eq.

47. Is the equation $3(2x - 4) = -18$ equivalent to $6x - 12 = -18$?

$6x-12=-18$

A. Yes, the equations are equivalent by the Associative Property of Multiplication.

B. Yes, the equations are equivalent by the Commutative Property of Multiplication.

C. Yes, the equations are equivalent by the Distributive Property of Multiplication.

D. No, the equations are not equivalent.

48. $\sqrt{16} + \sqrt[3]{8} =$

A. 4

C. 9

B. 6

D. 10

$\sqrt{16} + \sqrt[3]{8} = 4 + 2 = 6$

Result is 2 because $2 \cdot 2 \cdot 2 = 8$, $2^3 = 8$, and cube root ($\sqrt[3]{x}$) is the opposite of cubing.