

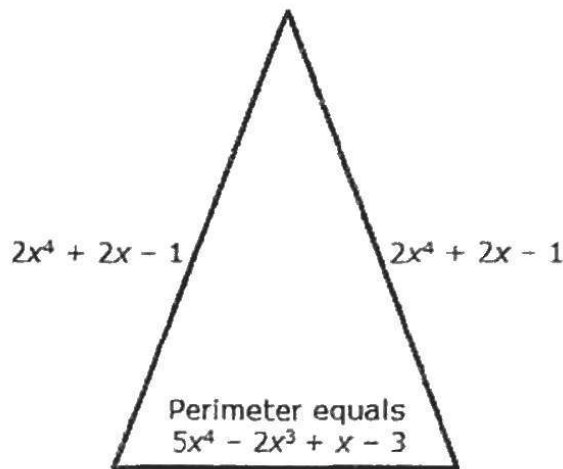
HW #605: Algebra I Pre-AP -- Review #2 for EOC-STAAR

1) Which expression represents the area of the rectangle with sides measuring $3x^3y^5z$ units and $4xy^3z^2$ units?

- [A] $(7x^3y^{15}z^2)$ units² [B] $(7x^4y^8z^3)$ unit² [C] $(12x^4y^8z^3)$ units² [D] $(12x^3y^{15}z^2)$ units²

2) The legs and perimeter of an isosceles triangle are given in the diagram to the right. Which polynomial expression best represents the measure of the base of the triangle?

- [A] $3x^4 - 2x^3 - x - 2$ ft [B] $x^4 - 2x^3 - 3x - 1$ ft
 [C] $7x^4 - 2x^3 + 3x - 4$ ft [D] $x^4 + 3x - 1$ ft



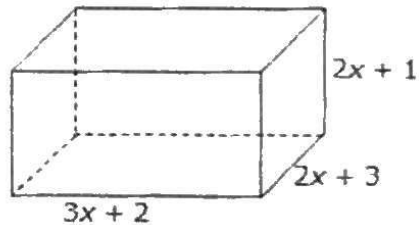
3) Jason's total business income per month is represented by the expression $a^9b^5c^{-2}$. The total products manufactured are represented by $a^5b^5c^5$. To find the monthly income per item, Jason needs

to square the expression $\frac{a^9b^5c^{-2}}{a^5b^5c^5}$

What is Jason's monthly income per item? Show your work and box your answer.

4) Which of the following polynomial expressions represents the volume of the prism shown here?

- [A] $7x + 6$ [B] $12x^3 + 26x^2 + 12x$
 [C] $12x^3 + 32x^2 + 25x + 6$ [D] $6x^2 + 13x + 6$



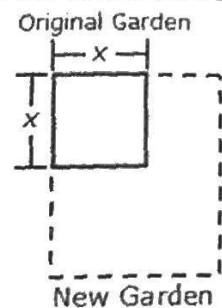
5) If the polynomial $6x^5 + 9x^4$ is rewritten in a factored form as $ax^b(cx + d)$, which of the following could be values of a and b ?

- [A] $a = 6; b = 5$ [B] $a = 3; b = 5$ [C] $a = 6; b = 4$ [D] $a = 3; b = 4$

6) The area of a rectangle is $6p^2 - 19p + 15$ square inches. If the length of the rectangle is $2p - 3$ inches, which of the following expressions represents the width of the rectangle?

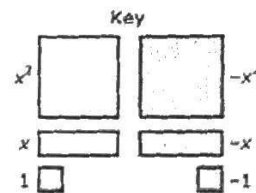
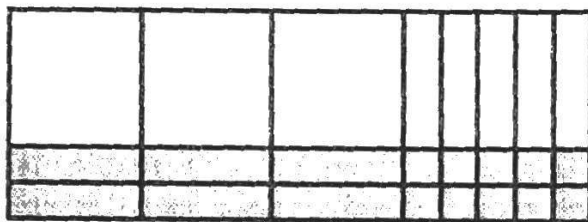
- [A] $(3p - 5)$ inches [B] $(3p + 5)$ inches [C] $(4p + 18)$ inches [D] $(4p - 5)$ inches

7) Mr. Green has a square garden with side lengths of x . He would like to increase the area of the garden to 25 square feet less than 4 times the current area. Which of the following could be the side lengths of the new garden?



- [A] $(4x-5)(x-5)$ [B] $(2x+5)(2x-5)$
 [C] $(4x+5)(x-5)$ [D] $(2x+25)(2x-1)$

8) The trinomial $3x^2 - x - 10$ is modeled below using algebraic tiles.



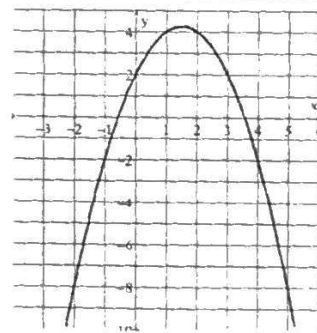
What is the factored form of $3x^2 - x - 10$?

- [A] $(x-5)(3x+2)$ [B] $(3x+5)(x-2)$ [C] $(x+5)(3x-2)$ [D] $(3x-5)(x+2)$

9) In the quadratic equation $x^2 - x - c = 0$, c represents an unknown constant. If $x = -6$ is one of the solutions of this equation, then what is the value of c ?

- [A] -42 [B] 42 [C] -30 [D] 30

10) The graph of a quadratic function is shown here. What is the best estimate of the positive value of x for which this function equals -2 ?

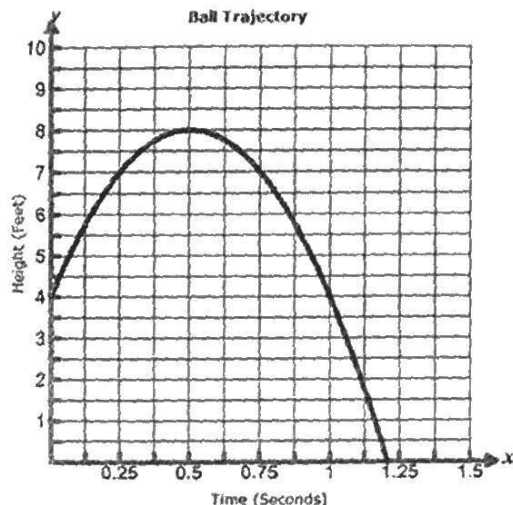


- [A] -8 [B] 4 [C] -1 [D] 1.5

11) What are the zeros of the graph of the function $y = 2x^2 + 7x - 15$?

- [A] 5 and 1.5 [B] 5 and -1.5 [C] -5 and 1.5 [D] -5 and -1.5

12) The graph here represents the trajectory of a ball.



Which statement accurately describes the path of the ball?

- [A] The ball hit the ground between 1.125 seconds and 1.25 seconds.
- [B] The ball reached its maximum height at 0.5 second.
- [C] The ball descended 3 feet between 0.75 second and 1 second.
- [D] All of the above.

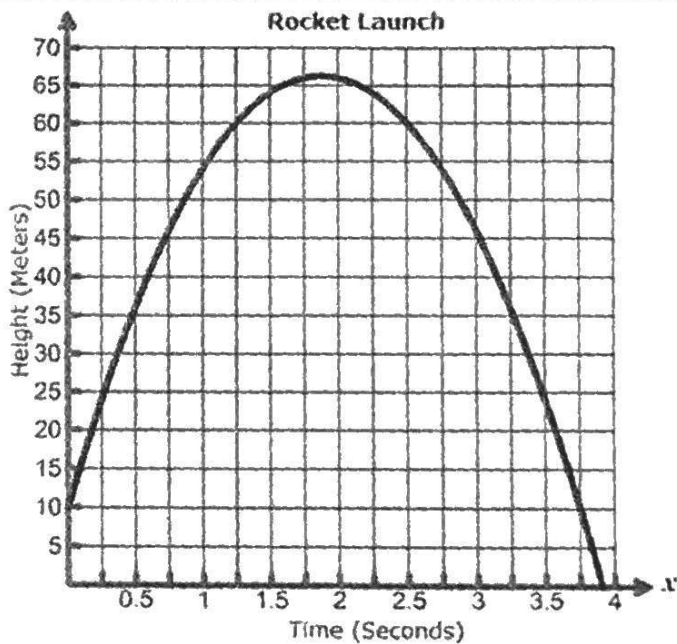
13) In the quadratic equation $2x^2 + 12x + c = 0$, c represents an unknown constant. If the equation has only one solution, what is the value of c ?

- [A] 10
- [B] 12
- [C] 16
- [D] 18

14) The graph here represents the height of a rocket that is launched from the top of a building.

How many seconds was the rocket at a height of 35 meters or higher?

- [A] 0.5 second
- [B] 2.75 seconds
- [C] 3.25 seconds
- [D] None of the these



15) The equation for the height of a cannonball fired from the ground is $h(t) = -16t^2 + 160t$. Approximately how many seconds, t , will the cannonball take to hit the ground?

- [A] 0
- [B] 5
- [C] 10
- [D] 15

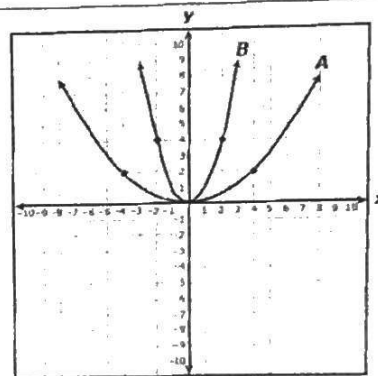
16) Which statement about the graph of $f(x) = -x^2 - 2x + 8$ is not true?

- [A] The graph has a y -intercept at $(0, 8)$.
- [B] The graph has a maximum point at $(-1, 9)$.
- [C] The graph has an x -intercept at $(2, 0)$.
- [D] The graph has the y -axis as a line of symmetry.

17) Jay is working on an Algebra assignment. For one of the problems, he graphs the function $y = 3x^2 - 4$. However, he soon discovers that he made a mistake. The function he should have graphed for the problem is $y = 3x^2 + 6$. In order to transform the function $y = 3x^2 - 4$ to the function $y = 3x^2 + 6$, what direction and how many units does Jay need to shift each point on his original graph?

- [A] 2 units up
- [B] 10 units up
- [C] 2 units to the right
- [D] 10 units to the right

18) Ms. Estep shows her class the graph below. For parabolas A and B, the y -axis is the line of symmetry. Ms. Estep writes the equation of curve A in the form of $y = ax^2 + c$. She tells the students that the curve B is derived by making just one change to the equation of curve A.



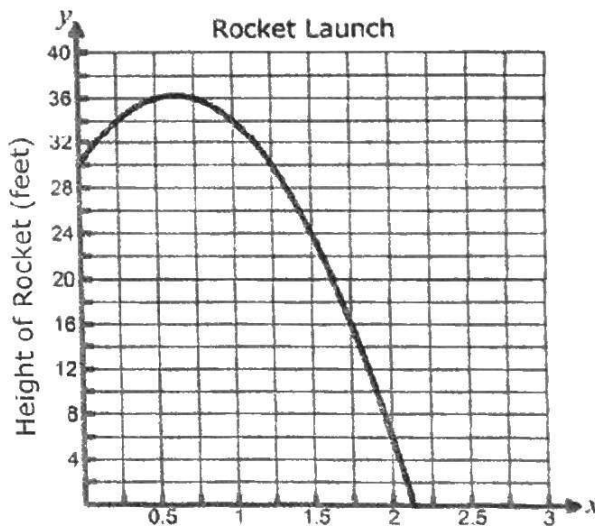
Which of the following, when applied to the equation of curve A, results in the graph of curve B?

- [A] Dividing a by 8
- [B] Multiplying a by 8
- [C] Dividing a by 0.25
- [D] Multiplying a by 0.25

19) The graph below represents the height of a rocket that is launched from the top of a building.

Which statement best describes the path of the rocket?

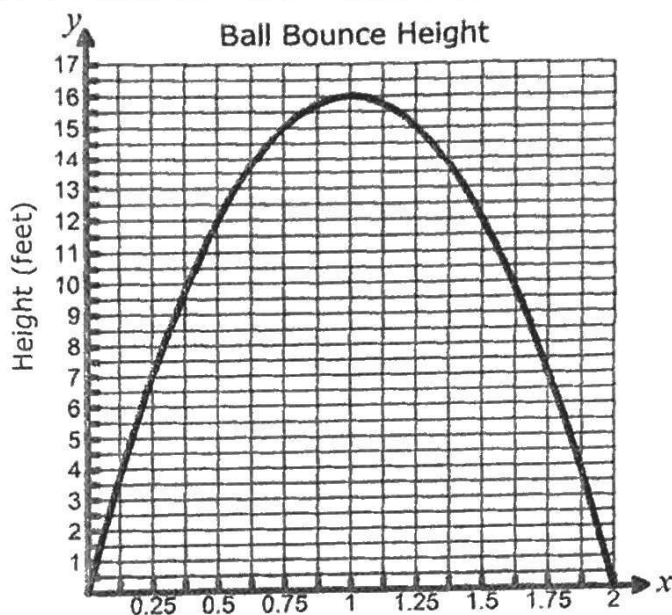
- [A] The rocket reached the ground between 2.25 seconds and 2.5 seconds.
- [B] The rocket was below 34 feet between 0.25 seconds and 1 second.
- [C] The rocket reached its maximum between 1 second and 1.25 seconds.
- [D] The rocket descended 8 feet between 1.5 seconds and 1.75 seconds.



20) The graph below shows the height of a ball versus time for one bounce.

For how many seconds was the ball at a height of 7 feet or more above the ground?

- [A] 0.25 seconds
- [B] 1 seconds
- [C] 1.5 seconds
- [D] 1.75 seconds



21) What is the 6th term of the geometric sequence $f(1) = 12$, $f(n) = -\frac{2}{3}f(n-1)$?

- F. $-\frac{128}{81}$
- G. $\frac{256}{243}$
- H. $\frac{128}{81}$
- J. $\frac{64}{27}$

22) Which value is *not* in the range of the function $y = -3(2)^{x+1} + 4$?

- F. -2
- G. 1.5
- H. 3
- J. 4

23. Which statement describes the transformation of the graph of $f(x) = \frac{1}{2}x^2$ to the graph of

$$g(x) = \frac{1}{2}x^2 - 3?$$

- F. The graph of g is a vertical translation $\frac{3}{2}$ units down of the graph of f .
- G. The graph of g is a vertical translation 3 units down of the graph of f .
- H. The graph of g is a horizontal translation 3 units right of the graph of f .
- J. The graph of g is a horizontal translation 3 units left of the graph of f .

24. The graph of $f(x) = x^2$ is shown. Which statement describes the graph of $g(x) = -\frac{1}{3}x^2$?

- A. The graph of g opens up and is narrower than the graph of f .
- B. The graph of g opens up and is wider than the graph of f .
- C. The graph of g opens down and is narrower than the graph of f .
- D. The graph of g opens down and is wider than the graph of f .

