Name: _____

Mixed Review – Fifth Six Weeks Extra Credit

Directions: Complete every question with correct work shown to receive full credit. Full credit counts as two extra credit homework grades in the third six weeks.

Due Date: Wednesday, April 8, 2015

1. What are the solutions to the equation $x^2 - 4x = -1$?

   F $x = \frac{-4 \pm \sqrt{20}}{2}$

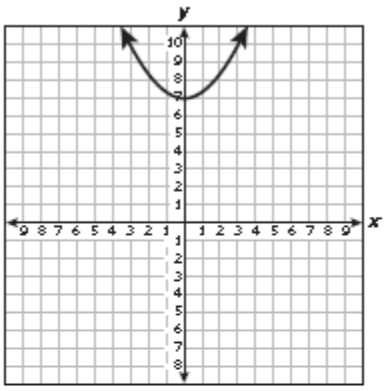
   G $x = \frac{4 \pm \sqrt{12}}{2}$

   H $x = \frac{-4 \pm \sqrt{12}}{2}$

   J $x = \frac{4 \pm \sqrt{20}}{2}$

2. Which graph can be obtained by translating the graph of $h(x) = 0.33x^2 + 2$ down 7 units?

A



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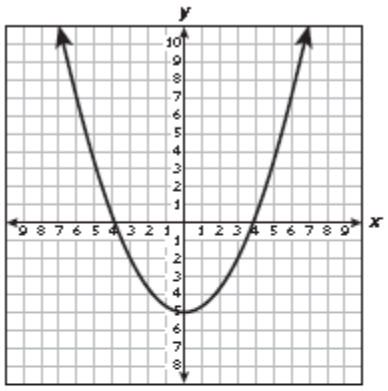

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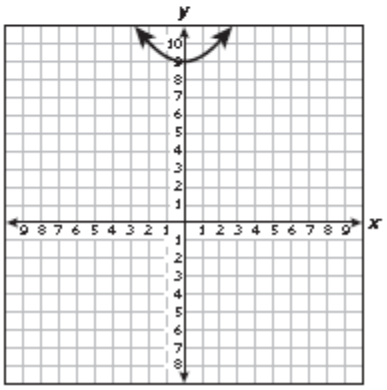

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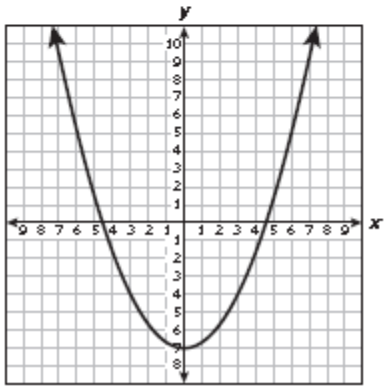


3. Which statement about the quadratic equation below is true?

$$-4.5x^2 + 72 = 0$$

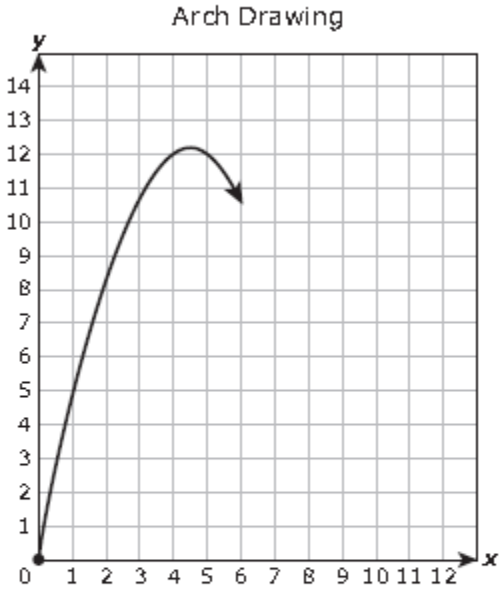
F The equation has $x = 4$ as its only solution.

G The equation has no real solutions.

H The equation has $x = 4$ and $x = -4$ as its only solutions.

J The equation has an infinite number of solutions.

4. An architecture student is drawing a graph of an arch. As shown below, the arch has the shape of a parabola that begins at the origin and has a vertex at (4.6, 12.2).



Other than the origin, at which point will the graph intersect the x-axis?

A (12.2, 0)

B (9.2, 0)

C (4.6, 0)

D (10.6, 0)

5. If the graph of $y = 9x + 4$ is translated 4 units up, which equation describes the new graph?

F $y = 9x + 8$

G $y = 13x + 4$

H $y = 13x + 8$

J $y = 4x + 4$

6. Which expression is equivalent to $-6x^2 - 11x - 4$?

A $(3x + 7)(3x - 3)$

B $(-3x + 4)(2x - 1)$

C $(3x - 7)(3x + 3)$

D $(-3x - 4)(2x + 1)$

7. If $y = -\frac{4}{5}x - 2$, what is the value of x when $y = -9$?

F $-\frac{35}{4}$

G $-\frac{55}{4}$

H $\frac{35}{4}$

J $\frac{55}{4}$

8. Which expression is equivalent to $\frac{12x^6y^{-4}z^2}{3x^2y^{-6}z^3}$?

A $\frac{9x^8z^5}{y^{-10}}$

B $\frac{4x^8z^5}{y^{-10}}$

C $\frac{9x^4y^2}{z}$

D $\frac{4x^4y^2}{z}$

9. Which set of ordered pairs contains only points that are on the graph of the function $y = 12 - 3x$?

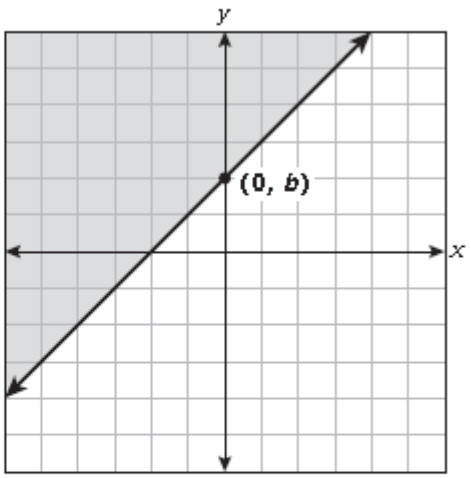
A $\{(-3, -27), (0, 0), (6, 54)\}$

B $\{(-18, 10), (-6, 6), (18, -2)\}$

C $\{(-5, 27), (-1, 15), (8, -12)\}$

D $\{(-7, -9), (-4, 0), (2, 18)\}$

10. Which inequality can be represented by the graph below?



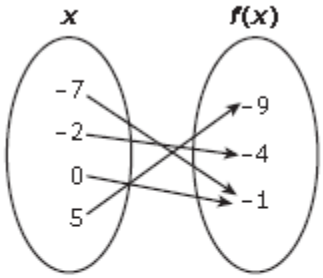
F $y \geq x + b$

G $x - y \geq -b$

H $x + y \leq b$

J $-y \leq x + b$

11. What is the range of the function shown below?



F $\{-7, -2, 0, 5\}$

G $\{-9, -4, -1\}$

H $\{-9, -7, -4, -2, -1, 0, 5\}$

J $\{-1\}$

12. An architect is designing an office building with n floors that will have an FM radio antenna 15.85 m tall on its roof. Each floor of the building will be 3.9 m high. Which function can be used to find the total height of the building in meters, including the FM antenna?

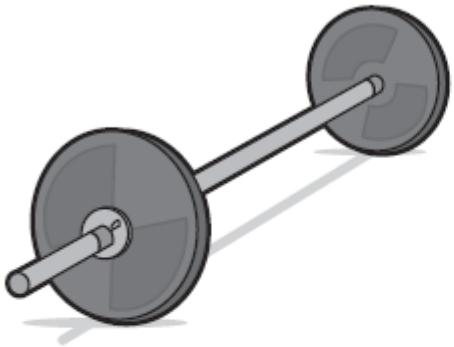
A $h(n) = 15.85n + 3.9$

B $h(n) = 3.9n + 15.85$

C $h(n) = 3.9n - 15.85$

D $h(n) = 19.75n$

13. A weightlifter is adding plates of equal weight to a bar. The table below shows the total weight, including the bar, that he will lift depending on the total number of plates on the bar.



Number of Plates	Total Weight (lb)
2	115
4	185
6	255
8	325

Based on this information, which statement is true?

A The bar weighs 35 lb without any plates.

B The bar weighs 70 lb without any plates.

C The bar weighs 45 lb without any plates.

D The bar weighs 25 lb without any plates.

14. What are the x-intercepts of the graph of the quadratic function $f(x) = 5x^2 + 4x - 1$?

F $\frac{1}{5}$ and -1

G $-\frac{1}{5}$ and 1

H 0 and -1

J $-\frac{2}{5}$ and $1\frac{2}{5}$

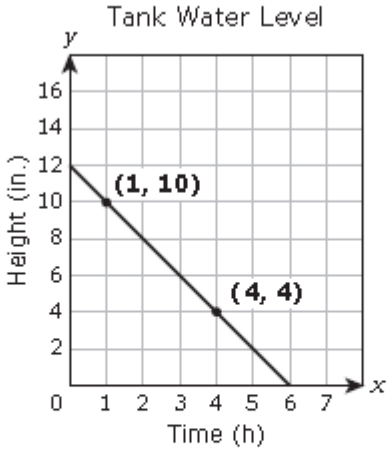
15. The dishwasher at a restaurant is loaded with the same number of dishes every time it is used. The table below shows the total number of dishes washed as a function of the number of times the dishwasher is used.

Restaurant Dishwasher

Number of Times Used	Total Number of Dishes Washed
2	52
4	104
6	156
8	208

Based on the data in the table, what is the total number of dishes that will have been washed when the dishwasher is used 9 times?

16. The graph below shows the water level in a tank being drained at a constant rate.



If the rate at which the tank is drained is changed to 3 inches per hour and the initial water level stays the same, how would the time it takes to empty the tank be affected?

F It would take 4 fewer hours.

G It would take 1.5 more hours.

H It would take 2 fewer hours.

J It would take 2 more hours.

17. The first six numbers in a pattern are shown below.

$$\frac{1}{3}, \frac{4}{3}, 3, \frac{16}{3}, \frac{25}{3}, 12, \ldots$$

If the pattern continues, which expression can be used to find the nth number in the pattern?

A $\frac{2n}{3}$

B $\frac{n^2}{3}$

C $\frac{n^2}{6}$

D $\frac{2n}{6}$

18. A high school band held a bake sale. The number of cupcakes sold was four more than twice the number of cookies sold. The band sold a total of 52 cupcakes and cookies. How many cupcakes were sold?

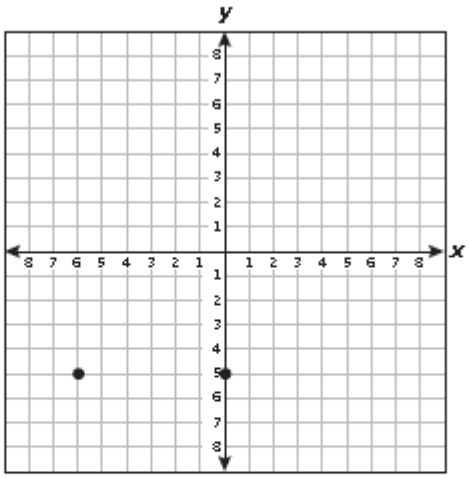
F 28

G 16

H 36

J 24

19. Two points on the graph of a quadratic function are shown on the grid below.



What is the equation for the axis of symmetry of the graph of this function?

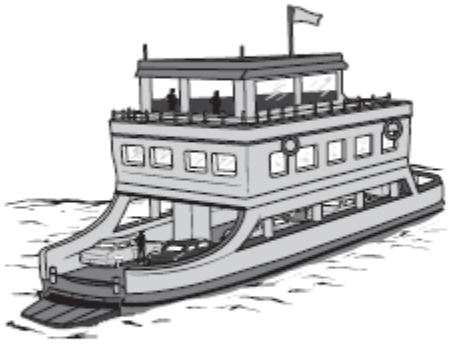
A $x = -3$

B $y = -3$

C $x = -5$

D $y = -5$

20. The number of ferryboat trips, $f(c)$, needed to transport c cars in 1 day can be found using the function $f(c) = \frac{c}{20}$. If there are no more than 5,000 cars transported by ferryboat daily, what is the range of the function for this situation?



A The set of all integers greater than or equal to 5,000

B The set of all integers from 0 to 5,000

C The set of all integers greater than or equal to 250

D The set of all integers from 0 to 250