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Joey, who is 8 years old, is a star player for his school's basketball team. His latest shot is shown on the graph, which represents the height of the basketball as a function of the horizontal distance. The unit of measurement is feet. What is the significance of the point (0, 4) on the graph?

- A) Joey caught the ball from a height of 4 feet.
- B) Joey released the ball from a height of 4 feet.
- C) Joey threw the ball a horizontal distance of 4 feet.
- D) The lowest point of the ball on the graph is 4 feet.

2) Sketch the absolute value function f(x) = -|-2x - 3| + 5. Which key feature of the graph is **mot** correct?

- A) y-intercept (0, 3)
- B) x-intercept (1, 0)
- C) x-intercept (-4, 0)
- D) maximum $(-\frac{3}{2}, 5)$



What is the range for the graph shown?

- A) $-3 \le y \le 2$
- B) -3 and 2
- C) $-3 \le y \le 3$
- D) -2 ≤ y ≤ 3

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Which function is represented by this graph?

- A) $f(x) = [[x 2]], -1 \le x \le 4$
- B) $f(x) = [[x 2]], -1 \le x < 5$
- C) $f(x) = [[x 2]], -1 < x \le 5$
- D) $f(x) = [[x 2]], -1 < x \le 4$

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Which function is graphed here?

A)
$$f(x) = \sqrt{x - 1}$$

B)
$$f(x) = \sqrt{x+1}$$

C) $f(x) = \sqrt{x-2} + 1$
D) $f(x) = \sqrt{x+2} + 1$



Which shows the graph of the piecewise function given?

- A)
- B)
- C)
- D)

7) As a fundraiser, the band is selling cookies. The cost to make each cookie can be written as c(x) = 0.25x + 0.5 and the functions that represents the amount they sell the cookie for can be written as s(x) = 2x. What function represents the profit, P(x), for each function?

- A) P(x) = 0.5x + 1
- B) $P(x) = 0.5x^2 + x$
- C) P(x) = 2.25x + 0.5
- D) P(x) = 1.75x 0.5

8) Andy and Sam are saving money to go on their senior trip.

The amount of money that Andy will have at the end of each week, w, can be expressed at A(w) = 20w + 300. The amount of money that Sam will have at the end of each week, w, can be expressed at S(w) = 15w + 400.

They have decided to combine their savings accounts. Write a function that expresses the total amount, T(w) they have in their savings account at the end of each week.

- A) T(w) = 5w 100
- B) T(w) = 35w + 700
- C) T(w) = -5w + 100
- D) $T(w) = 300w^2 + 12500w + 120000$

9) An apartment complex has a rat problem. The number of rats in the apartment complex can be modeled by the function f(t) = 2t + 100, where t represents the number of days. Because of the rat problem, the apartment complex calls an exterminator. If the exterminator can trap and get rid of 10 rats per day, write a new function, h(t), to represent the number of rats in the apartment complex each day.

Answer: _____

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x	У
0	3
1	1
2	-1

Which equation represents the data in the table shown?

- A) y = -2x
- B) y = 2x + 3
- C) y = -2x + 3
- D) y = -2x 3



Which equation is modeled by the graph? Using the equation, about how many more cars are in the deck at 9:00 a.m. than at 8:30 a.m.?

- A) y = 3x + 50; 90 cars
- B) y = 4x + 50; 75 cars
- C) y = 3x 50; 120 cars
- D) y = -3x + 50; 45 cars

12) A beach has to enclose a rectangular area, because some endangered species are nesting there. They have 200 feet of rope to rope off the area with. What is the maximum area that they can rope off?

- A) 50 ft²
- B) 100 ft²
- C) 2500 ft²
- D) 5000 ft²



Which graph MOST closely models the data in the table?

- A) A
- B) B
- C) C
- D) D



The scatterplot shows temperature data from Nevada. The line of best fit, in blue, has equation C = 23.72 - 0.007 m. For what elevation does the linear model predict a mean temperature of 15° C? (Round to two decimal places.)

Answer:

15) Which equation would include all of these points?

(-2, 3), (-1, -3), (0, -5), (1, -3), (2, 3), (3, 13)

- A) y = 2x + 5
- B) y = 2x 5
- C) $y = 2x^2 + 5$
- D) $y = 2x^2 5$



Which function best expresses the linear relationship displayed by the scatter plot?

A) y = 1.6x - 3.6B) y = 0.6x + 9.6

- C) y = 1.6x + 25.6
- D) y = 0.6x + 12.4

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Which linear equation BEST represents the line of best fit for the scatterplot?

- A) $y = \frac{1}{3}x 1$ B) $y = -\frac{1}{3}x + 1$ C) y = 3x + 1
- D) y = 3x 1



Karl Roberts, CEO of Arko Equipment, analyzes the sales data for the first ten years of his company to make decisions for the company's future. Data is only readily available for some of the years the company has been in business. Find an equation for the line of best fit, and use it to approximate the sales for the company's third year to the nearest dollar amount. [Note: the y-intercept is 1500, and the line passes through (10, 2100).]

- A) \$1550
- B) \$1650
- C) \$1680
- D) \$1700

19) A sequence is defined that the first term is 4 and each term after the first term is found by adding $\frac{4}{5}$ to the preceding term.

What is the 8th term of the sequence?





The graph shows the cost for renting a post hole digger from a local hardware store. Determine the rate of change or cost per day.

- A) \$60 per day
- B) \$30 per day
- C) \$90 per day
- D) \$15 per day

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x	1	2	3	4	5
f	4	7	10	13	16

Given the table for f(x), write an expression for the function, and describe what it does.

- A) y=2x. y is double x.
- B) y=3x. y is triple x.
- C) y=3x+1. y is three times x plus 1.
- D) y=3x-1. y is three times x minus 1.