



Coordinate Algebra EOC (GSE) Quiz Answer Key

Seeing Structure in Expressions - (MGSE9-12.A.SSE.1) Interpret Expressions

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Date: _____

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Score: _____

1) Timmy has x bushels of apples, he sells 10 bushels and then gets a shipment of $4y$ bushels of apples. Which expression represents the number of bushels Timmy now has?

- A) $x + 10 - 4y$
- B) $x - 10 - 4y$
- C) $x + 10 + 4y$
- D) $x - 10 + 4y$

Explanation:

Tim starts with x bushels, then sells 10 which must be subtracted from what he started with, then he is given $4y$ so that must be added to the total; the correct answer is $x - 10 + 4y$.

2) Rick rents a car from a company that charges him \$25 per day plus 10 cents per mile driven. Which expression can represent the amount he owed on a recent rental?

- A) $25x + 0.1y$
- B) $25.1x$
- C) $25.1xy$
- D) $25.1 + 35y$

Explanation:

$25x + 0.1y$ is correct, where x is the number of days and y is the number of miles driven.

3) A golf driving range charges a flat fee of \$20 to practice and then \$5.75 for a bucket of balls. Write an equation that models the charges (C) in terms of the number of bucket of balls (b) that you use.

- A) $C = 5.75b + 20$
- B) $C = 20b + 5.75$
- C) $b = 5.75C + 20$
- D) $b = 20C + 5.75$

Explanation:

Since it costs 5.75 for a bucket that will be your slope. The y-intercept is 20 the flat fee for using the driving range. So an equation is $C = 5.75b + 20$

4) The price of a gallon of milk was \$2.65. The price rose y dollars after the last hurricane. Then the price dropped \$0.15 and later rose again by \$0.05. Which expression represents the current price of milk?

- A) $2.40 + y$
- B) $2.45 + y$
- C) $2.50 + y$
- D) $2.55 + y$

Explanation:

$2.65 + y - .15 + .05$ next, combine like terms
 $(2.65 - .15 + .05) + y$ add inside the parenthesis
 $2.55 + y$ final answer.

The key to setting up an addition expression of this nature is to carefully read the problems several times. Read it once in entirety to get an idea of the complete situation and circle each number you read, that will help you see them and not overlook one number.

Next carefully begin to construct your expression in the same order as presented in the problem. A common mistake in a problem like this one is forgetting the negative signs when the price dropped. A third reading of the problem to ensure the proper signs are in place is always a good measure.

5) A school club is raising money for a trip, and needs to reach \$10,000. Their fundraising progress is modeled by the function

$$f(x) = 435 + 1200x, \text{ where } x \text{ is measured in weeks.}$$

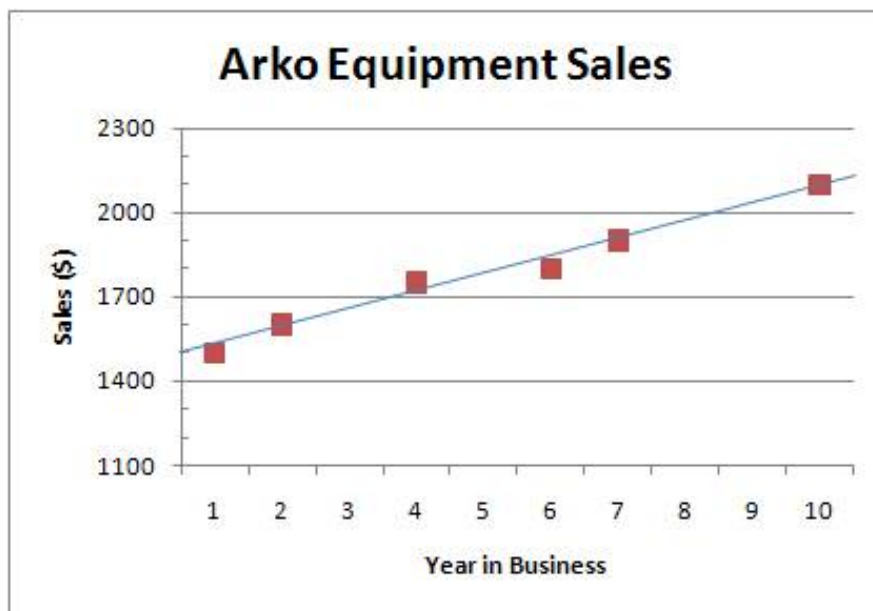
What is the meaning of the constant 435?

- A) It is the amount they started with.
- B) It is the amount still to be raised.
- C) It is the amount which is left over.
- D) It is the amount they raise each week.

Explanation:

It is the amount they started with. This is the y -intercept, so it is the amount of money that had at time zero, which is when they started.

6)



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

Explanation:

Using the y -intercept of \$1,500 and the data from the tenth year, the equation of the line of best fit would be $y = 60x + 1,500$. Substituting $x = 3$ for the third year would result in sales of **\$1,680**.

7) How many terms are present in the expression $(2 + 5 + 8)$?

- A) 1
- B) 2
- C) **3**
- D) 15

Explanation:

There are **3** terms in the expression $(2 + 5 + 8)$ since terms are numbers separated by + or - signs.

8) Which expression best represents *the difference between triple a number and double a number*?

- A) $3x - 2x$
- B) $2x - 3x$
- C) $x^3 - x^2$
- D) $x^2 - x^3$

Explanation:

The word difference indicates subtraction. The words triple and double are used when multiplying a quantity by 3 and by 2 respectively. $3x - 2x$ is correct.

9) Which expression represents how many years are in x months?

- A) $12x$
- B) $12 + x$
- C) $\frac{x}{12}$
- D) $\frac{12}{x}$

Explanation:

The conversion fact is 12 months = 1 year,

Thus x months = $\frac{x}{12}$ years.

10) Managers at a company rate employee's on performance and attitude and find that an employee's attitude depends on their performance. They find a linear relationship and the line of best fit is $y = 11.7 + 1.02x$. If the performance rating increased by 2 points what would happen to the attitude rating?

- A) **It would increase by 2.04 points.**
- B) It would increase by 11.25 points.
- C) It would increase by 23.4 points.
- D) It would increase by 0.089 points.

Explanation:

Since performance is the independent variable then each increase by one point results in a 1.04 increase in the attitude rating. Therefore, the attitude rating would increase by **2.04** points.

11) Which expression represents the number of feet that are in x yards?

- A) $12x$
- B) $36x$
- C) **$3x$**
- D) $\frac{x}{3}$

Explanation:

The conversion fact is **3 feet = 1 yard**. So

1 yard = 3 feet

2 yards = 2(3 feet)

3 yards = 3(3feet)

Thus, x yards would equal **$3x$** feet.

- 12)** Steven investigates the amount of damage to the head gaskets on the trucks in his fleet and finds that the damage index depends on the ambient temperature. He develops the equation $y = -\frac{2}{3}x + 14$ to model the relationship. If the temperature increases 1 degree, what happens to the damage index for the head gasket?
- A) It decreases by 14 points.
 - B) It decreases by 21 points.
 - C) It decreases by 0.047 points.
 - D) It decreases by $\frac{2}{3}$ of a point.**

Explanation:

Since temperature is the independent variable then each increase by one point results in a $\frac{2}{3}$ increase in the damage index.

Therefore, **It decreases by $\frac{2}{3}$ of a point.**

- 13)** Olivia is growing roses and keeps track of how much fertilizer (in ounces) she adds to the soil and how many blooms each rose bush has. She finds a linear relationship that can be modeled by the equation $y = 1.345x + 4$. When will Olivia only have 4 blooms?
- A) When she adds no fertilizer.**
 - B) Every bush will only have 4 blooms.
 - C) When she only adds 1 ounce of fertilizer.
 - D) It is not possible for her to only have 4 blooms.

Explanation:

Since 4 is the y-intercept the x-value must be 0. This only happens **when she adds no fertilizer..**

- 14)** Sven investigates the amount of damage to the head gaskets on the trucks in his fleet and find that the damage index depends on the ambient temperature. He develops the equation $y = -\frac{2}{3}x + 14$ to model the relationship. What does 14 mean?
- A) The temperature only adds 14 to the damage index.
 - B) If there is no damage index then the ambient temperature is 14.
 - C) If the damage index is 0, then the ambient temperature would be 0.
 - D) If the ambient temperature is 0 then the damage index would be 14.**

Explanation:

14 is the y-intercepts, which means that the x-value is 0. So the correct meaning is **If the ambient temperature is 0 then the damage index would be 14.** .

- 15)** Olivia is growing roses and keeps track of how much fertilizer (in ounces) she adds to the soil and how many blooms each rose bush has. She finds a linear relationship that can be modeled by the equation $y = 1.345x + 4$. What does the 1.345 mean in the context of the problem?
- A) That she must add 1.345 ounces of fertilizer every day.
 - B) That every day she found an additional 1.345 blooms on her rose bushes.
 - C) That for every additional bloom on the rose bush she added 1.345 ounces of fertilizer.
 - D) That for every ounce of fertilizer she adds there is an additional 1.345 blooms on the rose bush.**

Explanation:

1.345 is the slope and amount of fertilizer is the independent variable so that must mean that **That for every ounce of fertilizer she adds there is an additional 1.345 blooms on the rose bush.** .

16) Jamal owns a parking garage and is trying to find the relationship between hour of the day and number of cars in the garage. He finds that between 4 am and 10 am he can model this with a linear relationship. The equation for this model is $y = 3.56x + 2$. About how many cars are entering the garage every hour?

- A) 1
- B) 2
- C) 3
- D) 4**

Explanation:

The rate at which cars are entering the garage is the slope, so every hour $3.56 \approx 4$ cars are entering the garage. .

17) Find the degree of the polynomial:

$$9x^6y^2 - 5x^3y^4 + 4xy^5 - 5x^2y^3 + x^2y^2 + xy + 10.$$

- A) 6
- B) 8**
- C) 9
- D) 10

Explanation:

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The largest degree is found in the term $9x^6y^2$.

$$6 + 2 = 8$$

18) Which statement correctly translates the expression $\sqrt{x}(2-x) + \frac{6}{x}$?

- A) The product of the square root of a number and the quantity of two minus the number plus the product of six and the number.
- B) The square root of the product of a number and the quantity of two minus the number plus the product of six and the number.
- C) The square root of the product of a number and the quantity of two minus the number plus the quotient of six and the number.
- D) The product of the square root of a number and the quantity of two minus the number plus the quotient of six and the number.**

Explanation:

The product of the square root of a number and the quantity of two minus the number plus the quotient of six and the number.

19) Which is a factor of $z^3 - z^2 - 9z + 9$?

- A) (z - 1)**
- B) (z + 1)
- C) (z - 9)
- D) (z + 9)

Explanation:

(z - 1)

$$z^3 - z^2 - 9z + 9$$

$$z^2(z-1) - 9(z-1)$$