



Coordinate Algebra EOC (GSE) Quiz Answer Key

Functions - (MGSE9-12.F.LE.1b.) Recognize Situations

Student Name: _____

Date: _____

Teacher Name: THUYNGA DAO

Score: _____

1)

Week	Total
1	2
2	4
3	6
4	8
5	10

Chris starts a fishing club with one friend. During week 2 the club has 4 members. The club membership over 5 weeks is shown in the table. If the pattern continues, how many members will be in the fishing club after 7 weeks?

- A) 12 members
- B) 14 members**
- C) 16 members
- D) 18 members

Explanation:

The solution is **14 members**. According to the table, 2 members are added each week. Therefore after week 7 the club will have 14 members.

2)

Week	Total
1	2
2	4
3	6
4	8
5	10

Penny is painting pictures for a gallery show. Her goal is to have 16 paintings to sell at the show. The table shows the total number of paintings in her gallery collection after 5 weeks. After how many weeks will Penny have 16 paintings to sell?

- A) 6 weeks
- B) 7 weeks
- C) 8 weeks**
- D) 9 weeks

Explanation:

The solution is **8 weeks**. According to the table, Penny adds 2 paintings to her collection each week. Therefore, after 8 weeks Penny will have 16 paintings.

3)

A1 Catering Service

Number of People	Cost
50	\$600
100	\$1200
150	\$1800
200	\$2400
250	\$3000

The table shows the charges for a catering service. Based on the pattern in the table, calculate the charge for catering a party for 450 people.

- A) \$6000
- B) \$5400**
- C) \$4800
- D) \$4200

Explanation:

The solution is **\$5400**. To get the total cost, first divide 450 by 50. This gives us 9. We then multiply 9 by \$600 to get a total of \$5400.

4)

Month	Count
January	100
February	125
March	150
April	175
May	200

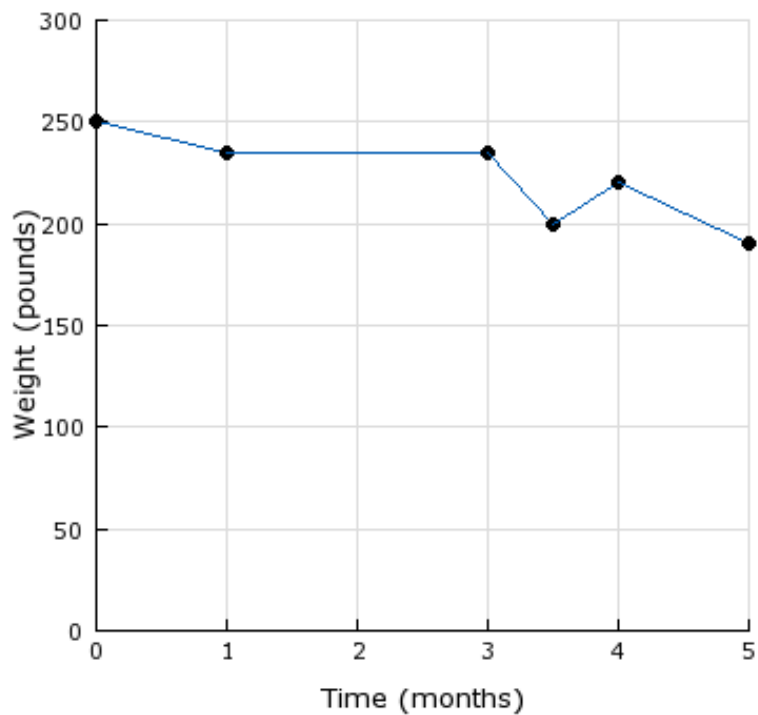
Katherine opens an exercise studio and after the first month, she has 100 members. The table shows the membership growth from January-May. If the pattern continues, when will Katherine's gym have 275 members?

- A) June
- B) July
- C) August**
- D) September

Explanation:

The solution is **August**. If the pattern continues Kathering will have 225 members in June, 250 in July and 275 in August.

5)



Jim's doctor has advised him to go on a diet for health reasons. The graph represents his weight fluctuation for the first 5 months of his diet. During which time period was Jim's weight constant?

- A) between 0 and 1 months
- B) between 1 and 2 months**
- C) between 3 and 4 months
- D) between 4 and 5 months

Explanation:

The solution is **between 1 and 2 months**. During this time period the graph is a line. Therefore the rate of change is constant.

6)

Month	Count
January	100
February	125
March	150
April	175
May	200

Wendi designs handbags. The chart shows her sales from January - May. If the pattern of sales continues at the same rate, during what month can Wendi expect to sell 325 handbags?

- A) August
- B) November
- C) October**
- D) September

Explanation:

The solution is **October**. If the pattern continues, Wendi's sales will follow the pattern below:

June: 225 handbags

July: 250 handbags

August: 275 handbags

September: 300 handbags

October 325 handbags

7)

A1 Catering Service

Number of People	Cost
50	\$600
100	\$1200
150	\$1800
200	\$2400
250	\$3000

The table shows the charges for a catering service. Based on the pattern in the table, calculate the charge for catering a party for 650 people.

- A) \$7800**
- B) \$6000
- C) \$5400
- D) \$4800

Explanation:

The solution is **\$7800**. To get the total cost, first divide 600 by 50. This gives us 12. We then multiply 12 by 650 to get a total of \$7800.

8) Derek reads at a rate of 25 words per minute. If he reads constantly until he is finished, how long would it take him to read a 225 word article?

- A) 93.75 hours
- B) 10 hours
- C) 5 hours
- D) **9 minutes**

Explanation:

It would take Derek 9 minutes to finish. Time= total words/ reading rate. $(225/25=9)$

9) A lion's heart beats 12 times in 16 seconds. How many heartbeats will it have in 60 seconds?

- A) 3.2 heartbeats
- B) 36 heartbeats
- C) **45 heartbeats**
- D) 60 heartbeats

Explanation:

The correct proportion is $12/16 = h/60$, then cross-multiply and solve the resulting equation. The answer is **45 heartbeats**.

10)

Month	Count
January	100
February	125
March	150
April	175
May	200

Katherine opens an exercise studio, and after the first month, she has 100 members. The table shows the membership growth from January-May. If the pattern continues, when will Katherine's gym have 375 members?

- A) **December**
- B) November
- C) October
- D) September

Explanation:

The solution is **December**. If the pattern continues Kathering will have 225 members in June, 250 in July, 275 in August, 300 in September, 325 in October, 350 in November and 375 in December.

11)

Days	People
1	26
2	30
3	34
4	38
5	42
6	46

The chart shows how many people have signed up to go on a field trip each day. How many people would you expect to sign up on day 7?

- A) 47
- B) 48
- C) 49
- D) 50**

Explanation:

Since each day 4 more people sign up, on day 7, $46 + 4$ or **50** people will have signed up.

12) Keisha is working on a math worksheet with 50 problems. She has completed 20 problems in 25 minutes. If she continues at the same pace, what will the total time be for her to complete the worksheet?

- A) 31.25 minutes
- B) 62.5 minutes**
- C) 70 minutes
- D) 75 minutes

Explanation:

Solution: **62.5 minutes**

Solve using the proportion: $\frac{20}{25} = \frac{50}{x}$

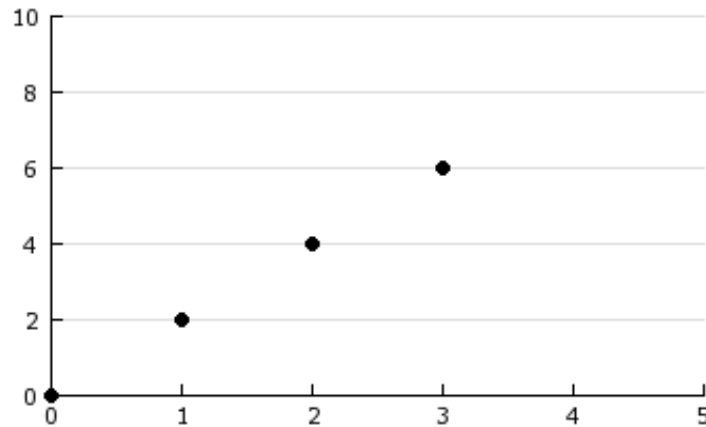
13) Bailey was mixing some instant pudding. The directions said to add 2 cups of milk to the contents of the package. The only measuring cup that she could find was a $\frac{2}{3}$ cup. How many times should she fill this measuring cup?

- A) 2
- B) 3**
- C) 4
- D) 5

Explanation:

Bailey should fill the measuring cup **3** times. $\frac{2}{3} \times 3 = 2$ cups.

14)



The points in the graph follow a linear pattern.

If the pattern is extended, what is the value of y when $x = -1$?

- A) -4
- B) -3
- C) -2
- D) 0

Explanation:

The solution is **-2**. From the pattern, we see that $y = 2x$.

15)

Days	People
1	26
2	30
3	34
4	38
5	42
6	46

The chart shows how many people have signed up to go on a field trip each day. 62 students are allowed to go on the field trip. On which day would you expect that number to be reached?

- A) 8
- B) 9
- C) **10**
- D) 11

Explanation:

Since each day 4 more people sign up, on day 7, 50 will have signed up; on day 8, 54 people; day 9, 58 people; and **day 10**, 62 people.

16) What is the slope of the function $f(x) = \left|\frac{1}{2}x\right| + 3$, when $x > 7$?

- A) 2

- B) 3
- C) $\frac{1}{2}$
- D) $\frac{1}{3}$

Explanation:

When $x > 7$, the slope will be positive. An absolute value function follows the same rules as $y = mx + b$, where $m =$ the slope.

Therefore the slope = $\frac{1}{2}$. Graphing the function and looking at the slope of the line is also a way to solve this problem.

17) If 12 cows produce 70 gallons of milk, how many gallons of milk would 42 cows produce?

- A) **245 gallons**
- B) 315 gallons
- C) 512 gallons
- D) 840 gallons

Explanation:

Here, k is the ratio of how much milk 42 cows produce \div how much milk 12 cows produce = $\frac{42}{12}$, which simplifies to $\frac{7}{2}$. $y = (\frac{7}{2}) \cdot 70$ gallons = **245 gallons** of milk.

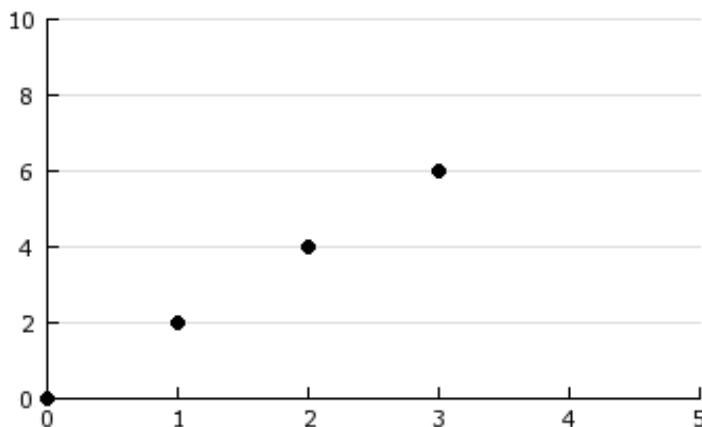
18) At the mall Julie finds a sale at her favorite store. Two pair of pants will cost \$42. If she wants to buy 5 pair, how much will she pay at the sale price?

- A) \$10
- B) \$21
- C) **\$105**
- D) \$175

Explanation:

First find out how much one pair of pants cost which is $\frac{42}{2} = \$21$. Then multiply that by 5 to find the cost of 5 pairs of pants, which is **\$105**

19)



The points in the graph follow a linear pattern. If the pattern continues, what is the value of y when $x = 5$?

- A) 7
- B) 8
- C) 9
- D) **10**

Explanation:

The solution is **10**. From the pattern, we see that $y = 2x$.

20)

A		C	
x	y	x	y
1	1	1	4
2	4	2	2
3	9	3	4/3
4	16	4	1

B		D	
x	y	x	y
1	1/2	1	3
2	1	2	5
3	3/2	3	7
4	2	4	9

The tables show four relationships between x and y. In which table is the rate of change the GREATEST?

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

Explanation:

In table **A** the y-values are growing very quickly, while in B and D the growth is slower, and in C the y-values are falling.

21) Sam uses $\frac{2}{3}$ of a cup of sugar per serving to make 48 cookies. How many cups of sugar does he need to make 288 cookies?

- A) $2\frac{2}{3}$
- B) 4
- C) $5\frac{1}{3}$
- D) 6

Explanation:

The correct answer is **4**. You can use a proportion to solve this question.

$$\frac{\frac{2}{3}}{48} = \frac{x}{288}$$

Solve by cross multiplying and dividing.

22) A water pump working at a constant rate can fill 10 water balloons in three minutes. How many water balloons can be filled in an hour?

- A) 18 balloons
- B) 20 balloons
- C) 60 balloons
- D) 200 balloons**

Explanation:

Since it takes 3 minutes to fill 10 balloons then you need to see how many times 3 can go into 60 minutes (one hour). Since 3 can go into 60 20 times then you have to multiply 10 by 20 to find that **200** balloons can be filled in one hour.

23) The slope of a straight line is defined as the change in y per change in x. What is the slope of the graph of $y = 2x$?

- A) -2
- B) -0.5
- C) 0.5
- D) 2**

Explanation:

The slope of any function that can be expressed as $y = kx$ is equal to k. For this equation, the slope is **2**.

24) A new car depreciates at a rate of 15% per year. What is the expected value of a \$25,000 car after 5 years (rounded to nearest whole dollar)?

- A) \$20750
- B) \$11093**
- C) \$9429
- D) \$6250

Explanation:

\$11093 Use $V(t) = V_0(1 - r)^t$ where $V(t)$ is the value of the car at any time (t), V_0 is the initial value, r is the depreciation rate, and t is the time in years.

25) In the function $y = 12.00x + 50$, y represents the cost of carpet by the square yard and x represents the number of square yards. How much does the cost increase for square yard of carpet purchased?

- A) x
- B) \$12.00**
- C) \$50.00
- D) \$62.00

Explanation:

\$12.00 is correct. The slope is the coefficient in front of x. Since the slope of the equation is 12.00, the carpet cost increases \$12.00 per square yard.

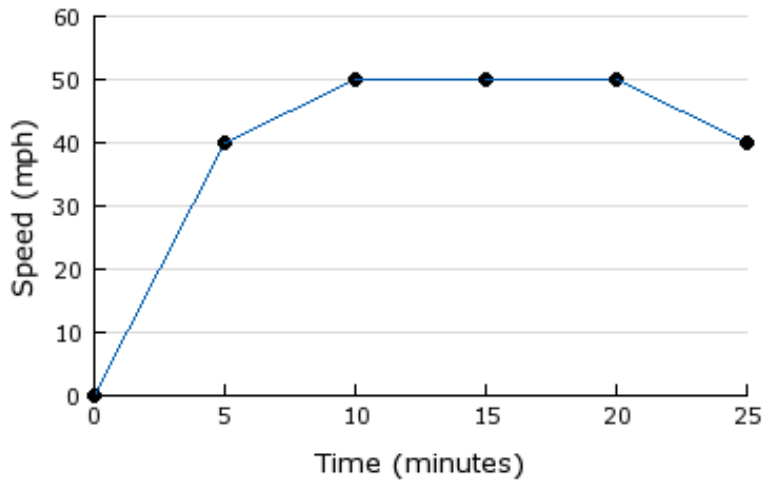
26) A shelter has enough food to feed an average of 80 hungry people a day for 14 days. If an average of 32 people are at the shelter each day, how long will the food last?

- A) 5.6 days
- B) 35 days**
- C) 183 days
- D) 200 days

Explanation:

If 40 people were at the shelter each day, the food would last twice as long as if 80 people were there; it would last 28 days. This type of relationship is inversely proportional. As the number of people decreases, the time the food will last increases. The correct proportion is $\frac{80}{32} = \frac{x}{14}$ days; $32x = 1120$, or $x = \mathbf{35 \text{ days}}$.

27)



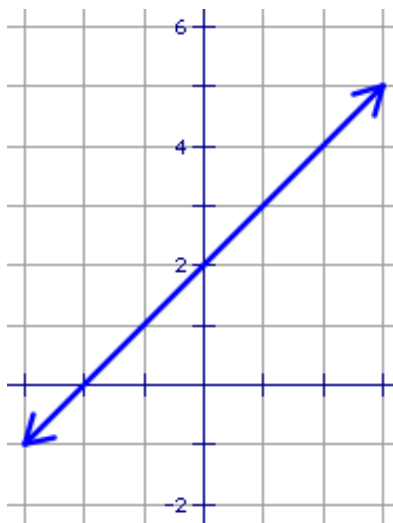
Which time period represents a constant rate of change?

- A) 0 minutes to 10 minutes
- B) 5 minutes to 10 minutes**
- C) 5 minutes to 15 minutes
- D) 15 minutes to 20 minutes

Explanation:

The solution is **5 minutes to 10 minutes**. During this time period the graph is a single, diagonal line and is therefore at a constant rate of change, this indicates that between 5 and 10 minutes, the speed is accelerating at a constant rate from 40 to 50 miles per hour.

28)



Original Equation: $y = x + 2$

The graph of the original equation is shown. Which equation will change the slope for the graph of the original equation to -1?

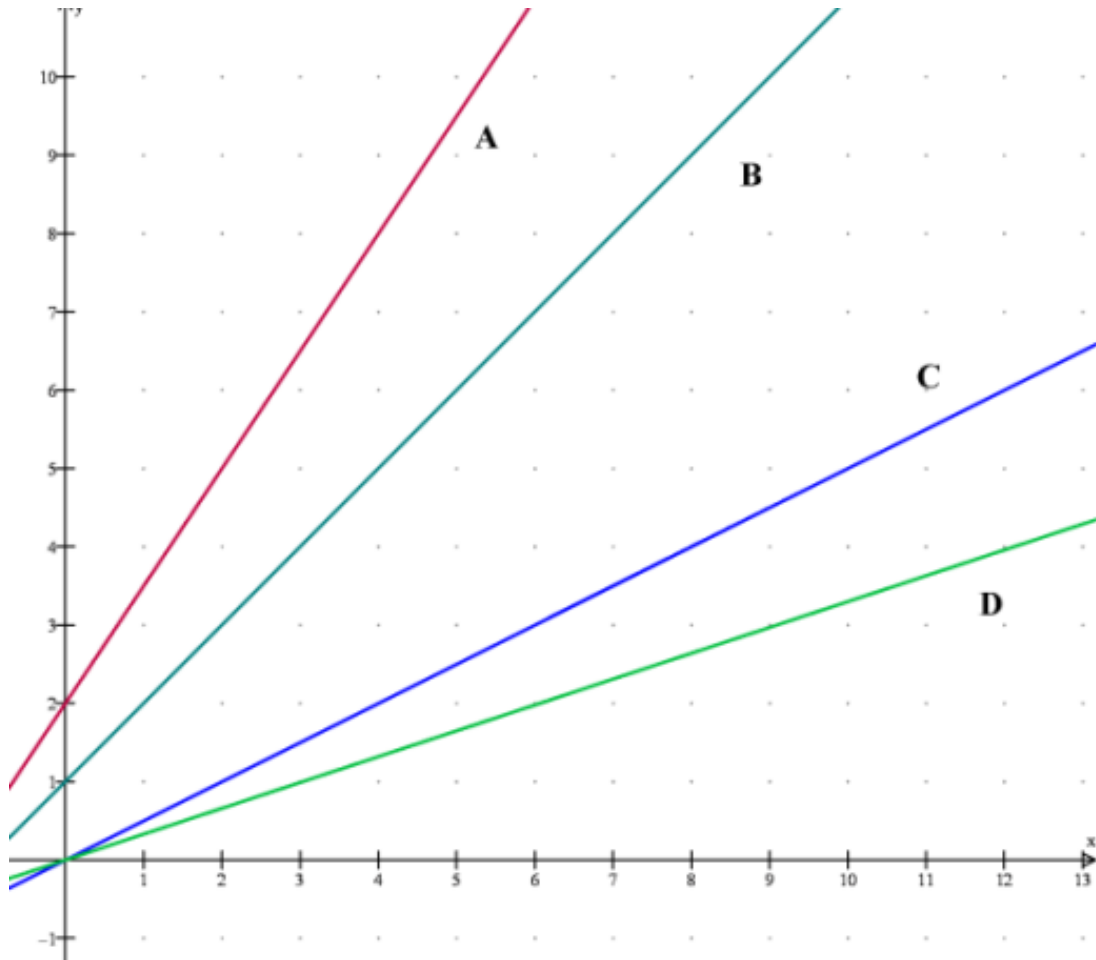
- A) $y = x - 1$
- B) $y = -x + 2$**
- C) $y = -x - 1$
- D) $y = -x - 2$

Explanation:

The solution is **$y = -x + 2$** . The slope of the original equation is 1. To change the slope to -1, we must change the value in front of x

to -1. The y-intercept does not change. This results in the equation $y = -x + 2$.

29)



Of the four functions graphed here, which shows the GREATEST rate of change?

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

Explanation:

In line **A** the y-values are growing fastest.

30)

Cost of Fencing

Amount fencing (feet)	Cost (\$)
4	16
6	24
10	40
15	60
30	120

Scott needs to buy fencing for his yard. He finds a table at the store that shows him the price of fencing (C) based on the number of feet purchased (x).

Which function could model the cost of fencing?

- A) $C = \frac{1}{4}x$
- B) $C = 4x$**
- C) $C = x^2$
- D) $C = 4 \cdot 2^x$

Explanation:

$$C = 4x$$

The rate of change for the cost of fencing is $\frac{24-16}{6-4} = 4$

If you buy no fencing your cost is \$0, you can use the point (0,0) to find an equation.