Algebra I Pre-Assessment

Name _____

Date _____

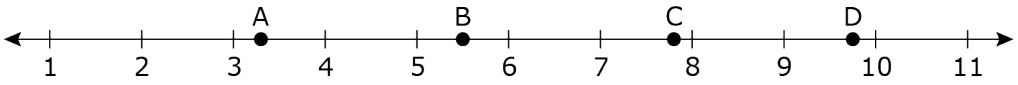
STEMscopes TEXAS MATH

Pre-Assessment

Directions

Read each question. Then follow the directions to answer each question. Mark your answers by circling the correct answer choices. If a question asks you to show or explain your work, you must do so to receive full credit.

1. Which point on the number line has a value that is approximately $\sqrt{95}$?



A. A

B. B

C. C

D. D

2. The cost of a laptop computer is $99.95 plus $31.50 per month. The cost of a desktop computer is $49.95 plus $42.80 per month. Which equation represents when the cost of both is the same?

A. $99.95m + 31.50 = 49.95m + 42.80$

B. $31.50m + 99.95 = 42.80m + 49.95$

C. $99.95m - 31.50 = 49.95m - 42.80$

D. $1.50m - 99.95 = 42.80m - 49.95$

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3. One bucket has half a liter of water and is being drained by a tenth of a liter per minute. Another bucket has a third of a liter of water and is being drained by a twentieth of a liter per minute. Which equation represents when the bucket with half a liter of water will have less water than the other bucket?

A. $\frac{1}{2}t + \frac{1}{10} < \frac{1}{3}t + \frac{1}{20}$

B. $\frac{1}{10}t + \frac{1}{2} < \frac{1}{20}t + \frac{1}{3}$

C. $\frac{1}{2} - \frac{1}{10}t < \frac{1}{3} - \frac{1}{20}t$

D. $\frac{1}{10}t - \frac{1}{2} < \frac{1}{20} - \frac{1}{3}t$

4. Which scenario could be represented by this equation?

$$10.50x + 40 = 12.00x$$

A. When will someone who has $40 and earns $10.50 per hour have the same amount of money as someone making $12.00 per hour?

B. When will someone who makes $10.50 per hour have $40 more than someone who makes $12.00 per hour?

C. When will someone who makes $10.50 per hour get a raise so they can make $12.00 per hour?

D. How long will it take someone who works two jobs, one for $10.50 per hour and the other for $12.00 per hour, to make $40?

GO ON

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5. Which scenario could be represented by this equation?

$$1.8 - 0.4x > 2.4 - 0.5x$$

A. How long would it take for a snail that moves 0.4 feet per minute and is at 1.8 feet to pass a snail that moves 0.5 feet per minute at 2.4 feet?

B. How many 0.4 lb. bricks need to be added to a 1.8 lb. crate before it has a greater weight than a 2.4 lb. crate with the same number of 0.5 lb. bricks added?

C. How long will it take a 0.4 lb. snowball that loses 1.8 pounds per day to have a greater weight than a 0.5 lb. snowball that loses 2.4 pounds per day?

D. How many days will it take until a 1.8 kL container full of hydrogen which loses 0.4 kiloliter per day has a greater volume of hydrogen than a 2.4 kL container full of hydrogen which loses 0.5 kiloliter per day?

6. Tim runs 6.5 m/s. His friend, John, starts 21 meters behind Tim and runs 7.2 m/s. How many seconds does it take John to catch Tim?

A. 10 s

B. 20 s

C. 30 s

D. 40 s

7. One car can be rented for $50 plus $1.25 per mile. Another car can be rented for $120 plus $0.75 per mile. How many miles would you need to drive each car so that the rental cost of both options is equal?

A. 120 mi.

B. 140 mi.

C. 160 mi.

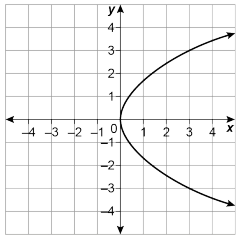
D. 180 mi.

GO ON

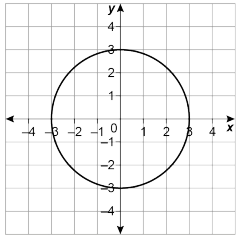
Pre-Assessment

8. Which of the graphs represents a function?

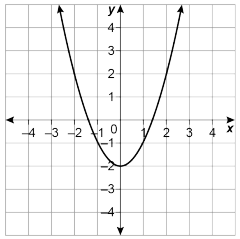
A.



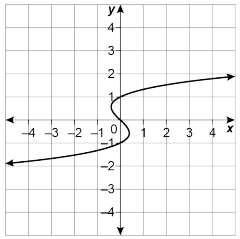
B.



C.



D.



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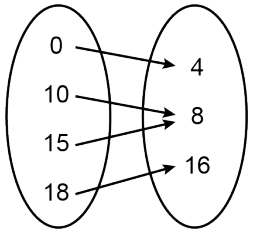
9. Select each of the following that represents a function.

A.



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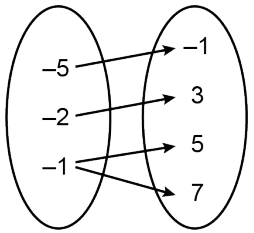

C. (0, 0), (1, 2), (3, 1), (2, 2)

D. (1, 2), (1, 3), (1, 5), (1, 8)

E.

x	*y*
−3	4
4	−3
5	5
6	4

GO ON

Pre-Assessment

10. A refrigerator costs $2 per day to keep running. Select an equation in the form $y = kx$ to represent the relationship if y is the total cost and x is the number of days the refrigerator runs.

A. $y = 2x$

B. $y = 4x$

C. $y = 2x + 2$

D. $y = x + 2$

11. A tree grows 1.5 feet every year. Fill in the table to represent this relationship between x years and y feet.

x	*y*
5	7.5
6	
7	
8	

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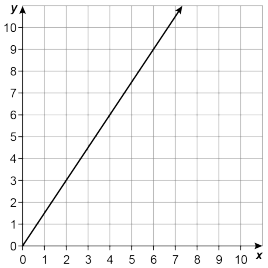
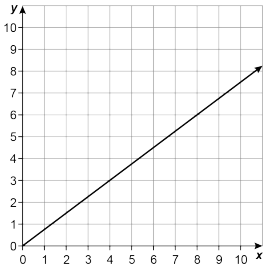
12. Bananas cost $0.75 per pound. Which graph represents the relationship between weight (x) and total cost (y) of the bananas?

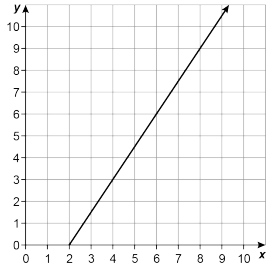
A.



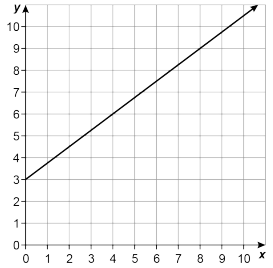
B.



C.



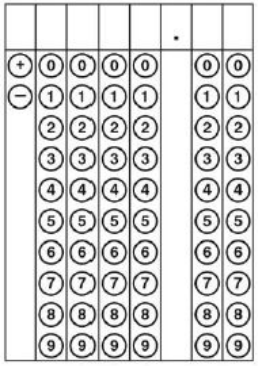
D.



GO ON

Pre-Assessment

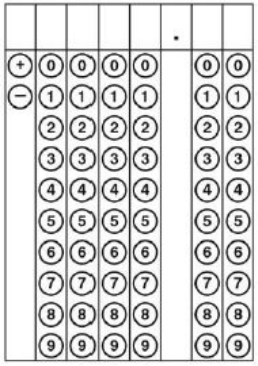
13. An ounce of almonds costs $1.75. How much do 8 ounces of almonds cost?



14. A rug has a design with 35 shapes in every square foot. How many shapes are in the rug if it has an area of 11 square feet?

Answer: _____

15. A pool is filled with water, and the volume of water is represented by the equation $y = 30.5x$, where y is the volume of water in gallons and x is the time in minutes. How many minutes does it take for the pool to have 6,100 gallons in it?



GO ON

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16. A car has driven 50 miles before stopping at a gas station. After filling up the tank, the driver travels 60 miles per hour. Which equation represents the situation where y is the total miles driven and x is the time in hours since the car left the gas station?

A. $y = 50x$

B. $y = 60x$

C. $y = 50x + 60$

D. $y = 60x + 50$

17. Jerome earns $25.50 for each item he sells, plus $200.00. Fill in the table to show how much Jerome earns, where x is the number of items he sells and y is the amount of money he earns.

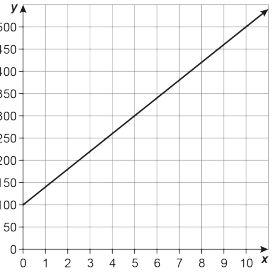
x	*y*
0	
2	
4	
6	

GO ON

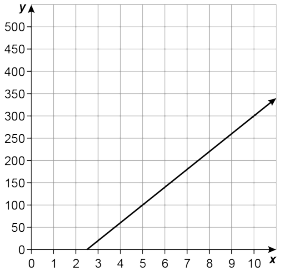
Pre-Assessment

18. A new phone costs $100 plus $40 per month. Which graph represents the cost of the phone, y, and the time in months, x?

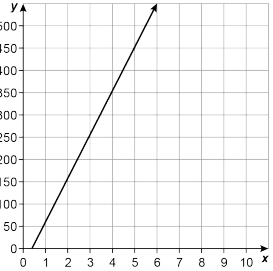
A.



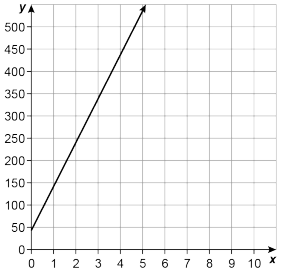
B.



C.



D.



GO ON

Pre-Assessment

19. Decide whether each statement represents a proportional or non-proportional function.

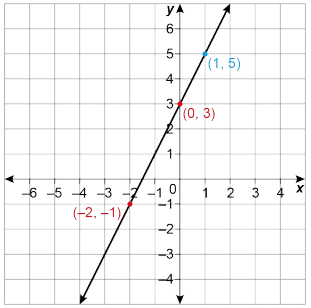
a. A gas tank has 2.3 gallons in it and is being filled by 0.1 gallon each second.

Circle one: proportional/non-proportional

b. A bag of candy costs $1.15 per ounce.

Circle one: proportional/non-proportional

20. Compare the slope of the line from (0, 3) to (1, 5) and the slope of the line from (−2, −1) to (0, 3). Select the true statement about the slopes.



A. One slope is double the other slope.

B. One slope is triple the other slope.

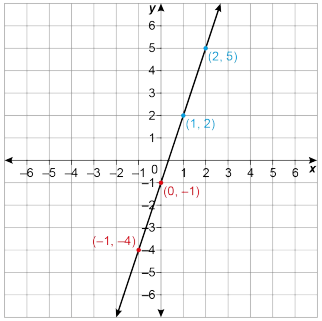
C. One slope is positive, and the other slope is negative.

D. The slopes are the same.

GO ON

Pre-Assessment

21. Which two points on the line must be chosen to find a slope of 3?



A. (0, −1) and (1, 2)

B. (0, −1) and (2, 5)

C. (−1, −4) and (0, −1)

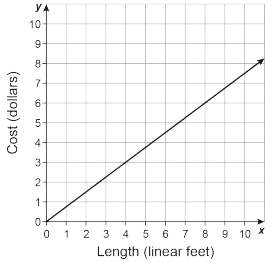
D. Any two points on the line can be chosen.

GO ON

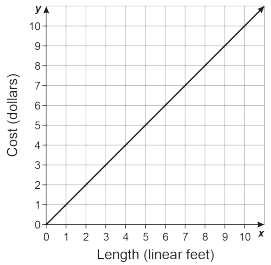
Pre-Assessment

22. Cotton fabric has a unit rate of $1.50 per linear foot. Which graph represents this relationship?

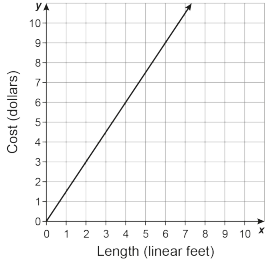
A.



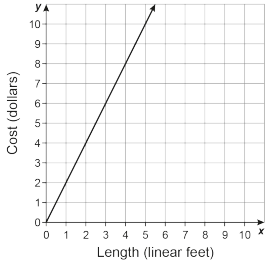
B.



C.



D.



GO ON

Pre-Assessment

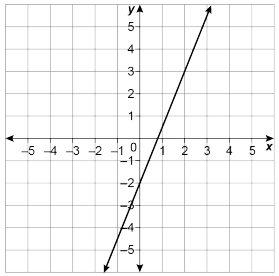
23. The table represents the amount of money in Sue's savings account each month. Identify the slope and *y*-intercept of the function represented by the table, where *x* is months and *y* is money in the account.

x	*y*
0	500
1	550
2	600
3	650

Slope: _____

y-intercept: _____

24. What is the rate of change of the function graphed below?



A. −2

B. 2.5

C. 3

D. 5

GO ON

Pre-Assessment

25. The table represents a linear relationship. Select the equation in the form $y = mx + b$ that models the relationship.

x	*y*
−1	3
0	5
1	7
2	9

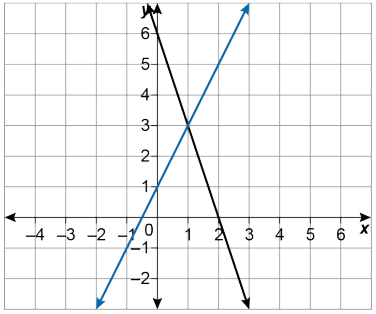
A. $y = 3x - 1$

B. $y = 3x + 5$

C. $y = 2x + 5$

D. $y = 2x + 3$

26. What is the solution to the system of linear equations represented in the graph?



A. (0, 1)

B. (2, 0)

C. (0, 6)

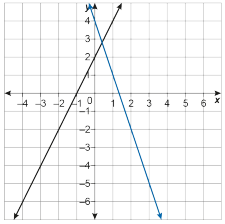
D. (1, 3)

GO ON

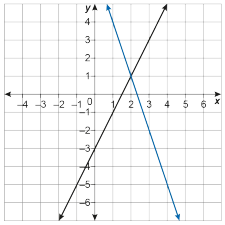
Pre-Assessment

27. Which system of linear equations has a solution of (2, −1)?

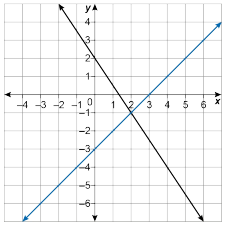
A.



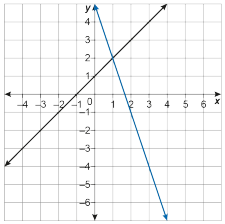
B.



C.



D.



GO ON

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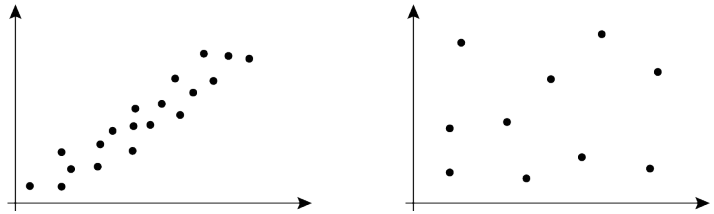
28. Compare the two sets of data. Which statement is true about the sets of data?



A. Both graphs show a linear relationship.

B. Both graphs have a strong correlation.

C. One graph has a positive linear relationship.

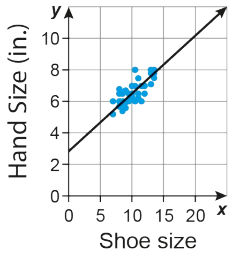
D. One graph has a negative linear relationship.

GO ON

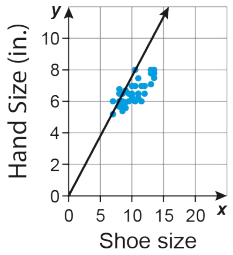
Pre-Assessment

29. Which of these lines of best fit would you use to predict the hand size of someone who wears size 15 shoes?

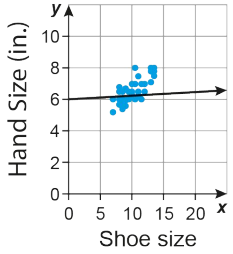
A.



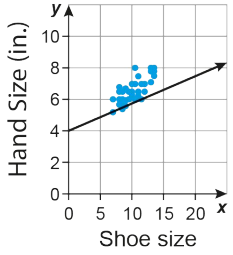
B.



C.



D.



STOP

Pre-Assessment

30. Determine the mean and the mean absolute deviation of the data.

11, 11, 14, 18, 20, 25

A. Mean: 16, Mean Absolute Deviation: 4

B. Mean: 16, Mean Absolute Deviation: 3.5

C. Mean: 16.5, Mean Absolute Deviation: 4

D. Mean: 16.5, Mean Absolute Deviation: 4.5

STOP