

Test Name: 2020-2021 T-Math-Gr8Reg-T2and3-PBT

Test ID: 2129129

Date:

Section 1 – Students may use a calculator.

Section 1 Instructions

Students may use a calculator for this test.

1. Which of these is a solution to the equation  $2(x - 5) = 9 - 3x + 6 + 8 + 3x + 7$ ?

A.  $x = 10$

B.  $x = 20$

C.  $x = 40$

D.  $x = 80$

2. What is the value of  $x$  in the equation  $0.25(3x - 4) - 0.5x = 2.75$ ?

A. 27

B. 15

C. 7

D. 3

3. An equation is shown.

$$-\frac{4}{5}(9x - 20) - 3x = \frac{4}{5}x - 6$$

Choose the value of  $x$  that makes this equation true.

A.  $x = -2$

B.  $x = -\frac{1}{2}$

C.  $x = \frac{1}{2}$

D.  $x = 2$

4. Which of these is a correct statement?

A. The equation  $3 - x + 4 = -x + 7$  has no solutions.

B. The equation  $x - 2 = 15x + 8 - 9x$  has one solution.

C. The equation  $4x + 5 + 8x = 25 + 2x$  has two solutions.

D. The equation  $9 + 3x - 1 = 10 + 3x$  has an infinite number of solutions.

5. Which equation has no solution?

A.  $-5 + 8x - 9 = 3(x + 3)$

B.  $-2(6 - 3x) = -12 + 6x$

C.  $6 - 2(3 - 2x) = -4(3 - x)$

D.  $-(4x + 9) = 2x - 3(2x + 3)$

6. How many solutions does the equation  $3x - 2x + 4 = 2 + x + 2$  have?

A. no solution

B. one solution

C. two solutions

D. infinitely many solutions

7. Select *all* equations that have one solution.

A.  $2x + 2x + 2 = 4x + 2$

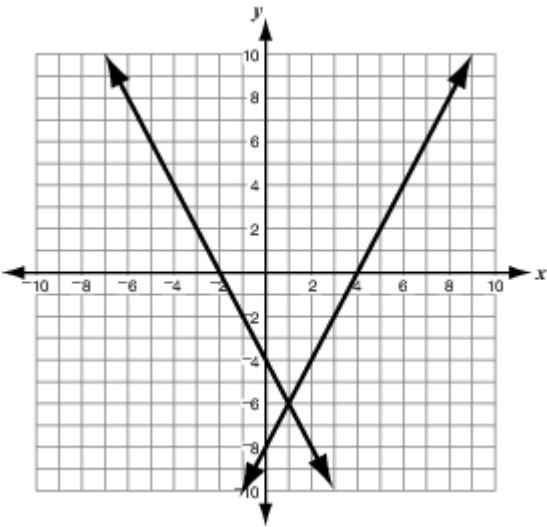
B.  $\frac{3}{4}(4x - 8) = 18$

C.  $x + x - (x + x) = 2x - x + 2$

D.  $\frac{1}{2}(x) = x + \frac{1}{2}$

E.  $-3(-x - 2) = 3(x - 2)$

8. What is the solution to the system of equations shown in the graph below?



- A. (-6, 1)
- B. (-2, 4)
- C. (1, -6)
- D. (-4, -8)

9. Find the point of intersection of the lines:

$$y = 4x + 1 \text{ and } y = -2x + 4$$

- A. (2, 9)
- B.  $(\frac{1}{2}, 3)$
- C. (1, 2)
- D.  $(\frac{1}{4}, 2)$

10.

The tickets to a ballet cost either \$25 or \$50. A total of 1,250 tickets, worth \$50,000, were sold. If  $x$  represents the number of \$25 tickets and  $y$  represents the number of \$50 tickets, which system of linear equations can be used to find the number of each type of ticket sold?

A. 
$$\begin{cases} 25x + 50y = 50000 \\ x + y = 1250 \end{cases}$$

B. 
$$\begin{cases} 25x + 50y = 1250 \\ x + y = 50000 \end{cases}$$

C. 
$$\begin{cases} 25x + x = 50000 \\ 50y + y = 1250 \end{cases}$$

D. 
$$\begin{cases} 25x + 50x = 50000 \\ y + y = 1250 \end{cases}$$

11.

The line passing through the points  $(-2, 12)$  and  $(3, -23)$  intersects the line passing through which of these pairs of points? Select three that apply.

A.  $(-6, 14)$  and  $(4, -16)$

B.  $(-5, 32)$  and  $(3, -24)$

C.  $(-4, 17)$  and  $(5, -28)$

D.  $(-3, 19)$  and  $(6, -44)$

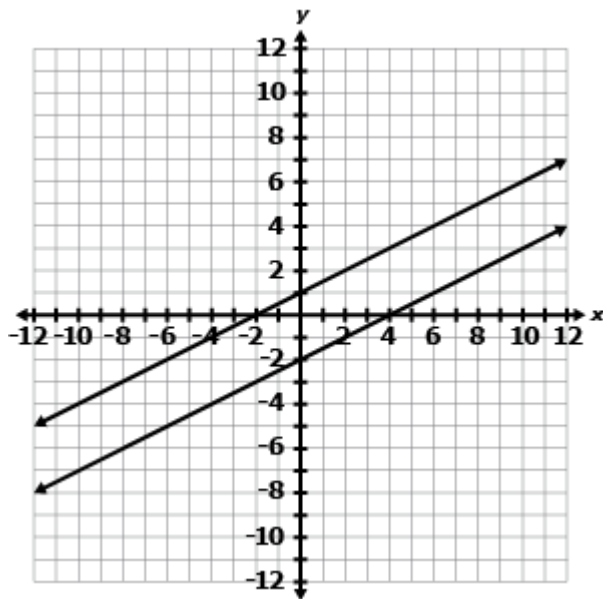
E.  $(-2, 16)$  and  $(2, -20)$

12.

Hannah is at the supermarket to buy carrots and potatoes. If she buys 2 pounds of carrots and 3 pounds of potatoes, it will cost her a total of \$8, and if she buys 4 pounds of carrots and 4 pounds of potatoes, it will cost her a total of \$13. Which of these statements is correct?

- A. Carrots cost \$1.50 a pound, which is less than potatoes cost.
- B. Carrots cost \$1.50 a pound, which is more than potatoes cost.
- C. Carrots cost \$1.75 a pound, which is less than potatoes cost.
- D. Carrots cost \$1.75 a pound, which is more than potatoes cost.

13. What is the solution to the system of linear equations graphed below?



- A.  $x = -2; y = 1$
- B.  $x = 4; y = -2$
- C. There are no solutions.
- D. There are an infinite number of solutions.

14. If  $3x - 9y = 21$  and  $6x + 3y = 21$ , which of these could be a value of  $x$  or  $y$ ?  
Select all that apply.

A. -5

B. -2

C. -1

D. 4

E. 5

F. 9

15.

$$\begin{aligned}3x + 2y &= 8 \\5x + 2y &= 12\end{aligned}$$

What is the solution of the system of equations shown above?

A. (-2, 7)

B. (2, 1)

C.  $(\frac{4}{3}, 2)$

D. (2, 4)

16.

Jeremy is solving this system of equations algebraically. Which equation could be a step in his work?

$$y = 3x + 1$$

$$4x - 3y = -13$$

- A.  $4x - 3(x) = -13$
- B.  $4x - 3(x + 1) = -13$
- C.  $4x - (3x + 1) = -13$
- D.  $4x - 3(3x + 1) = -13$

17. Which of these describes the system of linear equations below?

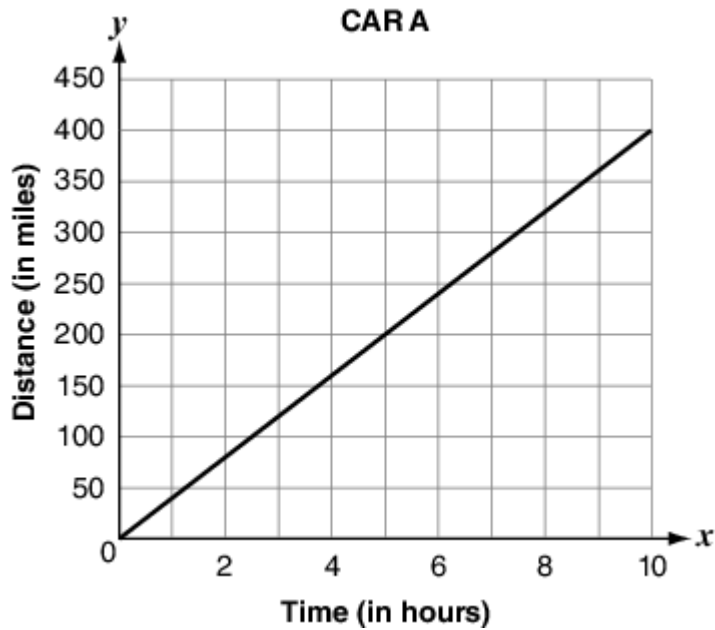
$$3x - 2y = 7$$

$$6x - 4y = 14$$

- A. The system has no solutions.
- B. The system has infinitely many solutions.
- C. The ratio of the x-coordinate to the y-coordinate of the only solution is 2:1.
- D. The difference between the x-coordinate and y-coordinate of the only solution is one.

18.

The distances traveled by car A and car B after  $x$  hours are represented by the graph and table below.



**CAR B**

$x$ (Time)	$y$ (Distance)
3	240
6	480
8	640
12	960

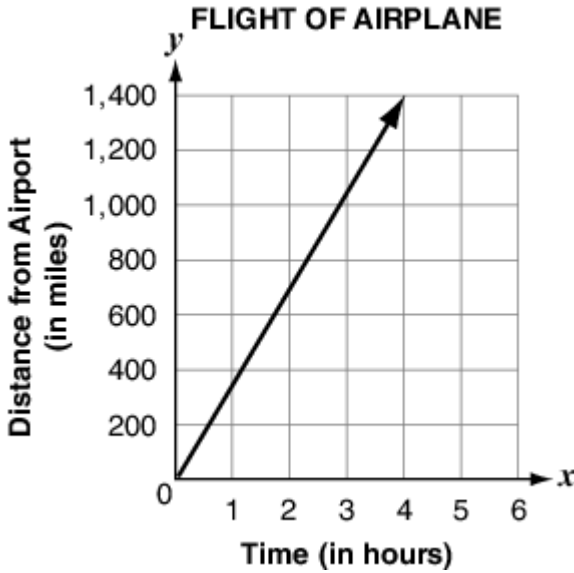
Which statement is true?

- A. The speed of car A is twice the speed of car B.
- B. The speed of car B is twice the speed of car A.
- C. The speed of car A is 2.4 times the speed of car B.
- D. The speed of car B is 2.4 times the speed of car A.

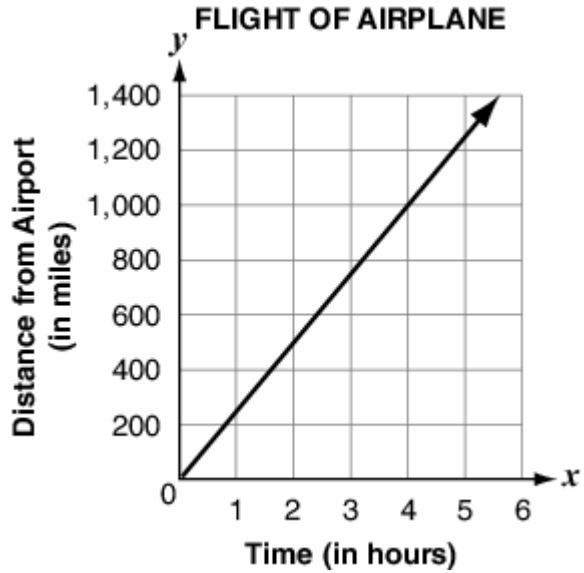
19.

A plane takes off from an airport and travels at a steady speed of 350 miles per hour. Which of these graphs best represents the distance the plane is from the airport,  $y$ , after traveling for  $x$  hours?

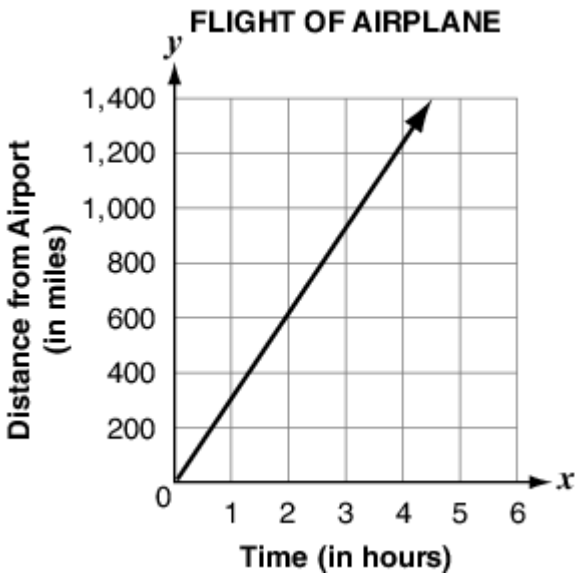
A.



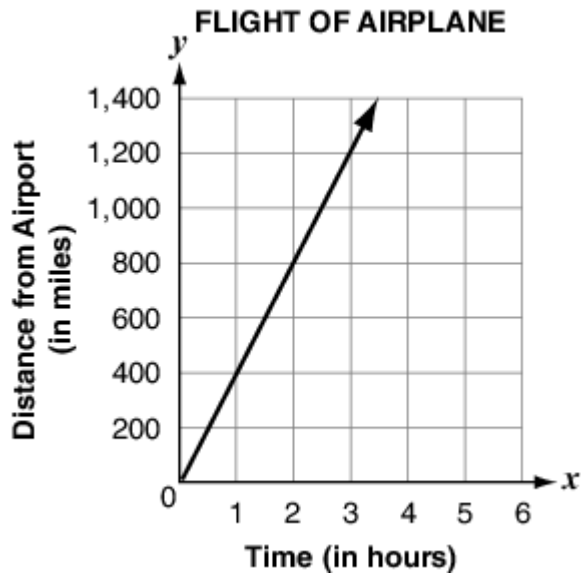
B.



C.

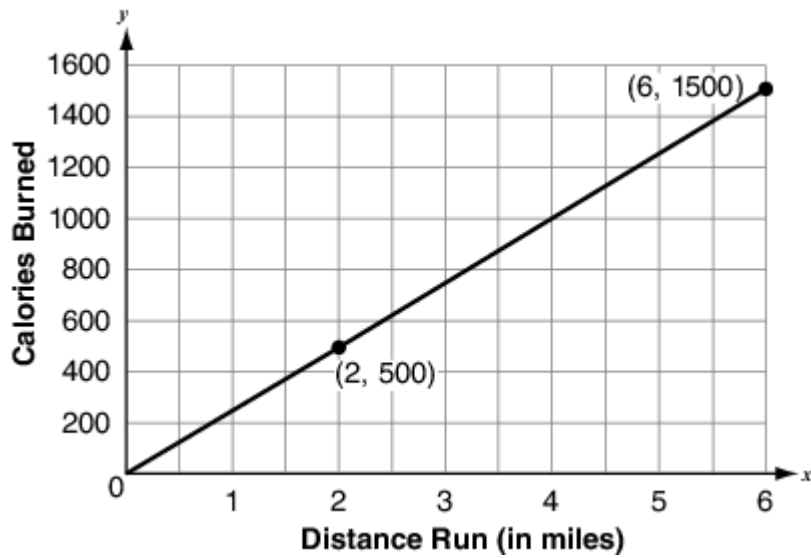


D.



20.

Benito drew a graph representing the number of miles he ran and the number of calories he burned.



What is the unit rate in calories per mile?

- A. 3
- B. 4
- C. 250
- D. 1,000

21.

The equation  $p = 3.25b$  can be used to find the price,  $p$ , in dollars, of  $b$  pounds of blueberries at a particular supermarket. Each of the tables gives the prices of various pounds of blueberries at a different supermarket. Which of these tables represents blueberries that are *more* expensive than those represented by the equation? Select all that apply.

A.

Pounds of blueberries	Price
1	\$2.75
2	\$5.50
3	\$8.25
4	\$11.00

B.

Pounds of Blueberries	Price
1.5	\$3.75
3	\$7.50
4.5	\$11.25
6	\$15.00

C.

Pounds of Blueberries	Price
2	\$7.00
4	\$14.00
6	\$21.00
8	\$28.00

D.

Pounds of Blueberries	Price
2.5	\$10.00
5	\$20.00
7.5	\$30.00
10	\$40.00

E.

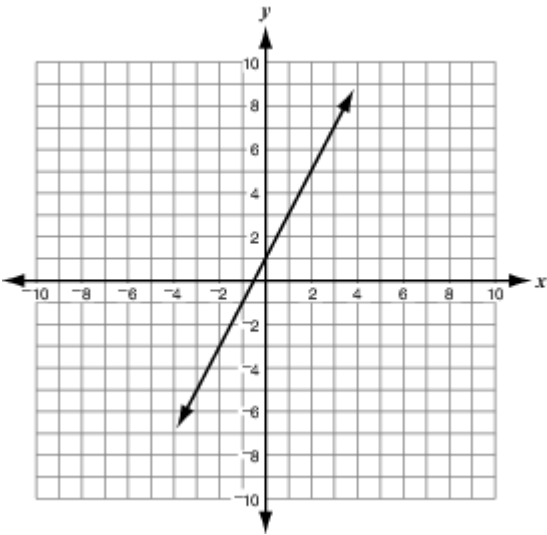
Pounds of Blueberries	Price
3	\$11.25
6	\$22.50
9	\$33.75
12	\$45.00

F.

Pounds of Blueberries	Price
3.5	\$10.50
7	\$21.00
10.5	\$31.50
14	\$42.00

22.

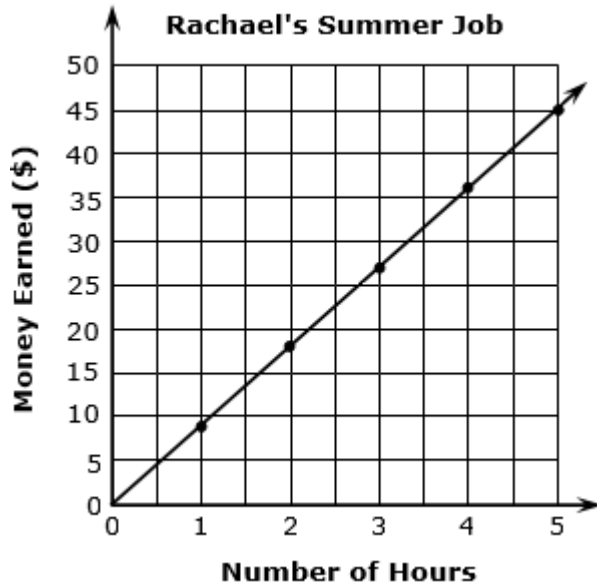
What is the equation of the line shown in the coordinate plane below?



- A.  $y = \frac{1}{2}x$
- B.  $y = 2x$
- C.  $y = \frac{1}{2}x + 1$
- D.  $y = 2x + 1$

23.

Rachael has a summer job working at a library. The graph shows the relationship between the number of hours Rachael worked and the amount of money, in dollars, that Rachael earned.



Select the equation that represents the amount of money,  $m$ , in dollars, that Rachael earned by working  $h$  hours.

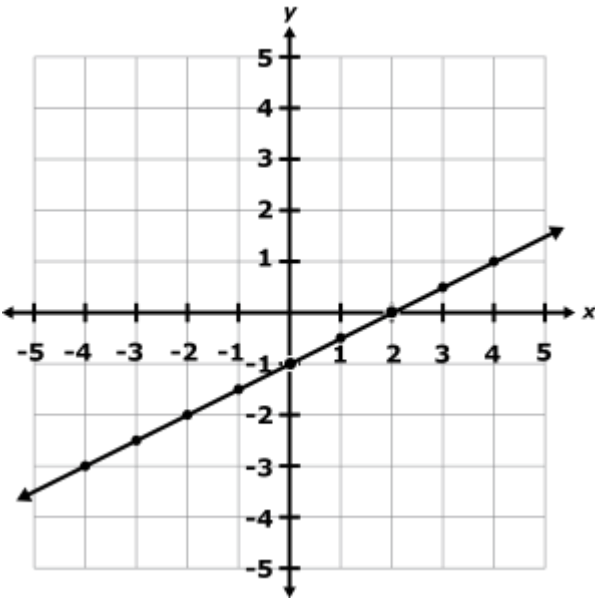
A.  $m = 10h$

B.  $m = 9.25h$

C.  $m = 9h$

D.  $m = 8h$

24. Select the equation that represents the graph of the line.



A.  $y = x - 1$

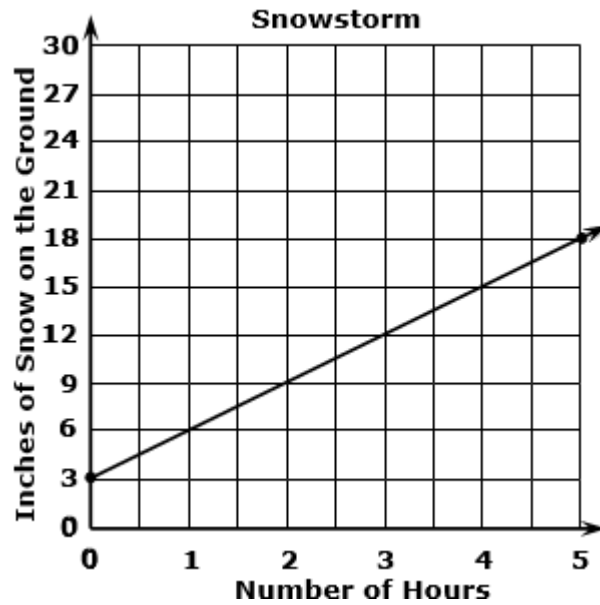
B.  $y = \frac{1}{2}x - 1$

C.  $y = \frac{1}{2}x + 2$

D.  $y = x + 2$

25.

During a snowstorm, snow falls at a constant rate and is recorded by a meteorologist. The data is plotted on the graph below.



Which equation models the relationship between the number of hours,  $x$ , of the snowstorm, and the number of inches of snow,  $y$ , on the ground?

A.  $y = 3x + 3$

B.  $y = \frac{1}{3}x + 3$

C.  $y = 3x + 18$

D.  $y = \frac{1}{3}x + 18$



You have reached the end of this test.

## Grade 8 FSA Mathematics Reference Sheet

### Customary Conversions

1 foot = 12 inches  
1 yard = 3 feet  
1 mile = 5,280 feet  
1 mile = 1,760 yards

1 cup = 8 fluid ounces  
1 pint = 2 cups  
1 quart = 2 pints  
1 gallon = 4 quarts

1 pound = 16 ounces  
1 ton = 2,000 pounds

### Metric Conversions

1 meter = 100 centimeters  
1 meter = 1000 millimeters  
1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams  
1 kilogram = 1000 grams

### Time Conversions

1 minute = 60 seconds  
1 hour = 60 minutes  
1 day = 24 hours  
1 year = 365 days  
1 year = 52 weeks