

1. Use elimination to find the solution to the system of equations.

$$5x + 2y = 15$$

$$4x - 8y = -36$$

- ☐ A. $x = 6, y = -\frac{15}{2}$
- ☐ B. $x = -7, y = 1$
- ☒ C. $x = 1, y = 5$
- ☐ D. $x = 4, y = -1$

2. Solve for x in the two equations below using substitution.

$$6x + 2y = 4$$

$$3x + 2y = 5$$

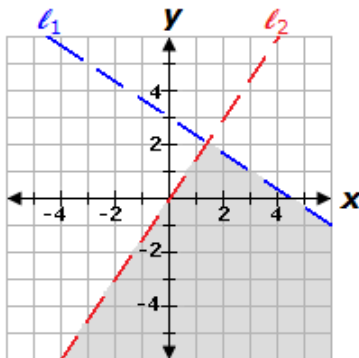
- ☐ A. $x = 3$
- ☒ C. $x = -\frac{1}{3}$
- ☐ B. $x = \frac{1}{3}$
- ☐ D. $x = 1$

3. Paul is looking at two vacation packages while planning a trip to Cancun, Mexico. In the first vacation package, round-trip airfare costs \$818, and it costs \$107 per night to stay at the resort. In the second vacation package, it costs \$365 per night to stay in the resort and \$380 for round-trip airfare.

Let x represent the number of nights spent at the resort, and let y represent the total cost of the trip. Which system of equations could be used to find how many nights Paul needs to stay at either resort so that both vacation packages have the same cost?

- ☒ A. $y = 107x + \$818$
 $y = 365x + \$380$
- ☐ B. $y = 380x + \$818$
 $y = 107x + \$365$
- ☐ C. $y = 107x + \$380$
 $y = 818x + \$365$
- ☐ D. $y = 818x + \$107$
 $y = 380x + \$365$

4. Which system of inequalities is represented by the graph below?



☒ A.
$$\begin{cases} y < -\frac{2}{3}x + 3 \\ y < \frac{3}{2}x \end{cases}$$

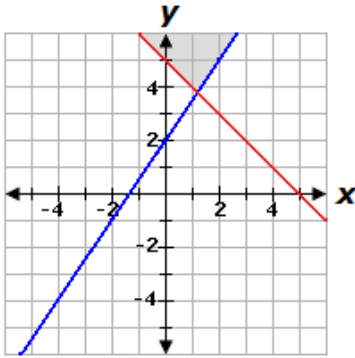
☐ B.
$$\begin{cases} y < \frac{2}{3}x \\ y < -\frac{3}{2}x + 3 \end{cases}$$

☐ C.
$$\begin{cases} y \leq -\frac{2}{3}x + 3 \\ y \leq \frac{3}{2}x \end{cases}$$

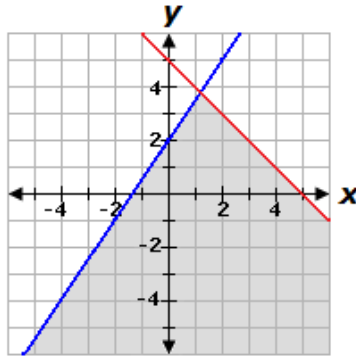
☐ D.
$$\begin{cases} y \leq \frac{2}{3}x \\ y \leq -\frac{3}{2}x + 3 \end{cases}$$

5. Which graph represents the following system of inequalities?

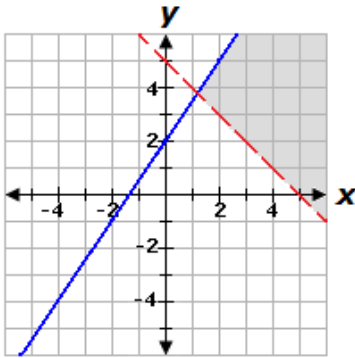
$$\begin{cases} y \leq \frac{3}{2}x + 2 \\ y > -x + 5 \end{cases}$$



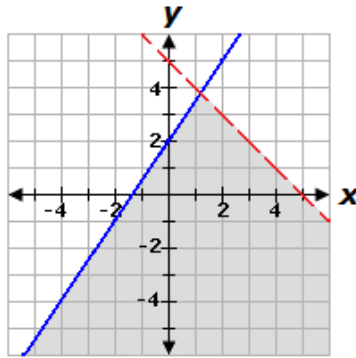
W.



X.



Y.



Z.

☐ A. W

☐ B. Z

☒ C. Y

☐ D. X

6. Jack is taking a math quiz. He needs to solve at least 10 geometry and algebra problems within 3 hours (180 minutes). Jack takes 30 minutes to solve a geometry problem and 10 minutes to solve an algebra problem.

Which system of inequalities can be used to determine the number of geometry problems (g) and the number of algebra problems (a) Jack can solve?

☐ A. $g + a \geq 10$
 $30g + 10a \geq 180$

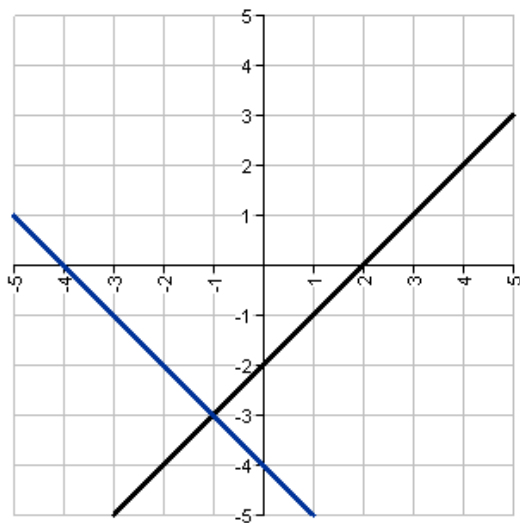
☐ B. $g + a \geq 10$
 $10g + 30a \geq 180$

☐ C. $g + a \geq 10$
 $10g + 30a \leq 180$

☒ D. $g + a \geq 10$
 $30g + 10a \leq 180$

7. The following system of equations is graphed below. Find the solution to the system.

$$\begin{aligned}2x - 2y &= 4 \\3x + 3y &= -12\end{aligned}$$



- ☒ A. $x = -1, y = -3$
- ☐ B. $x = 1, y = -3$
- ☐ C. $x = 1, y = 3$
- ☐ D. $x = -1, y = 3$

8. The first four terms of a linear pattern are given below.

x	y
1	6
2	-3
3	-12
4	-21
5	?

What is the missing term?

- ☒ A. -30
- ☐ B. -31
- ☐ C. -29
- ☐ D. -48

9. The first five terms of a pattern are given below.

28, 31, 34, 37, 40,

Which expression can be used to determine the n^{th} term of the pattern?

- ☒ A. $25 + 3n$
- ☐ B. $30 - 2n$
- ☐ C. $26 + 2n$
- ☐ D. $31 - 3n$

10. $(-1, -2)$ What is the domain of the set of ordered pairs above?
 $(2, -8)$
 $(5, -14)$
 $(9, -22)$
- ☐ A. $\{-1, 2, 5\}$
- ☒ B. $\{-1, 2, 5, 9\}$
- ☐ C. $\{-1, -2\}$
- ☐ D. $\{-2, -8, -14, -22\}$

11. The first five terms of a pattern are given below.

31, 34, 37, 40, 43,

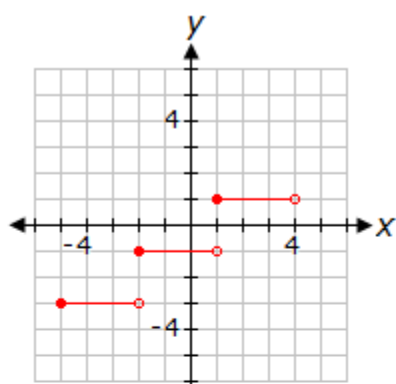
Which expression can be used to determine the n^{th} term of the pattern?

- ☐ A. $29 + 2n$
- ☐ B. $33 - 2n$
- ☒ C. $28 + 3n$
- ☐ D. $34 - 3n$
12. Do the ordered pairs below represent a relation, a function, both a relation and a function, or neither a relation nor a function?

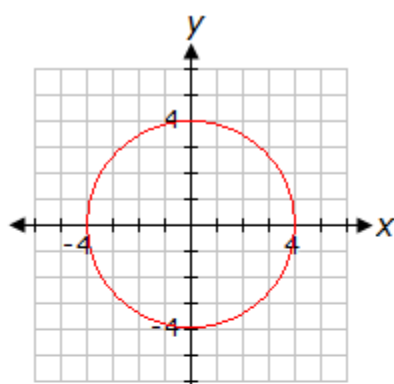
$(-1, -3)$, $(0, -5)$, $(7, -19)$, $(8, -21)$

- ☒ A. both a relation and a function
- ☐ B. neither a relation nor a function
- ☐ C. relation only
- ☐ D. function only
13. The elements of a function of x are $(2, -3)$, $(3, -5)$, and $(5, -8)$. What is the range of the function?
- ☐ A. $\{-3, 2, 3\}$
- ☐ B. $\{13\}$
- ☐ C. $\{-8, -5, -3, 2, 3, 5\}$
- ☒ D. $\{-8, -5, -3\}$

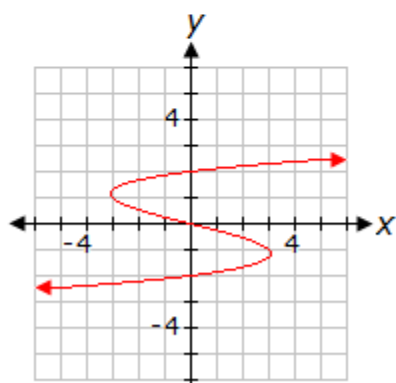
14. Which of these graphs represents a function?



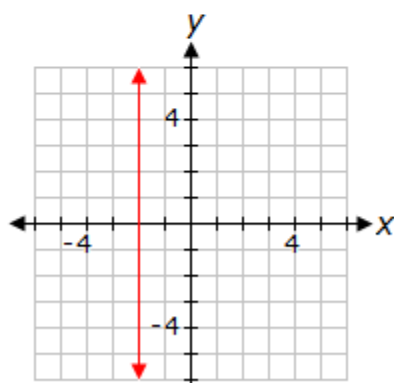
W.



X.



Y.



Z.

15. Do the ordered pairs below represent a relation, a function, both a relation and a function, or neither a relation nor a function?

$(-4, 3), (0, -1), (7, -8), (9, -10)$

- ☐ A. relation only
- ☒ B. both a relation and a function
- ☐ C. function only
- ☐ D. neither a relation nor a function

16. Which of the following relations describes a function?

- ☐ A. $\{(0, 0), (0, 2), (2, 0), (2, 2)\}$
- ☐ B. $\{(2, 2), (2, 3), (3, 2), (3, 3)\}$
- ☐ C. $\{(2, -1), (2, 1), (3, -1), (3, 1)\}$

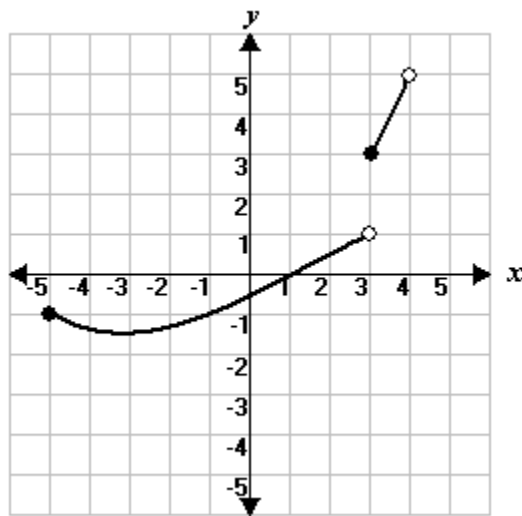
- ☒ D. $\{(-2, -3), (-3, -2), (2, 3), (3, 2)\}$

17. According to the table below, what is the domain of the data?

x	y
0.86	1.13
0.66	0.93
0.46	0.73
0.26	0.53
0.06	0.33

- ☐ A. 0.96, 0.76, 0.56, 0.36, 0.16
- ☐ B. 0.27, 0.47, 0.67, 0.87, 1.07
- ☐ C. 1.13, 0.93, 0.73, 0.53, 0.33
- ☒ D. 0.86, 0.66, 0.46, 0.26, 0.06

18. The graph of a function is shown below. Which value is not in the domain?



- A. -5
- B. 3
- ☒ C. 4
- D. 1

19. The first five terms of a pattern are given below.

99, 90, 81, 72, 63, ...

What is the next term of the pattern?

- ☒ A. 54
- ☐ B. 52
- ☐ C. 53
- ☐ D. 55

20. Samantha and Maria purchased flowers. Samantha purchased 5 roses for x dollars each and 4 daisies for y dollars each and spent \$32 on the flowers. Maria purchased 1 rose for x dollars and 6 daisies for y dollars each and spent \$22. The system of equations below represents this situation.

$$5x + 4y = 32$$

$$x + 6y = 22$$

Which statement is true?

- ☒ a. A rose costs \$1 more than a daisy.
- ☐ b. Samantha spent \$4 on each daisy.
- ☐ c. Samantha spent more on daisies than she did on roses.
- ☐ d. Samantha spent over 4 times as much on daisies as she did on roses.

21. Mike always leaves a tip of between 8% and 20% for the server when he pays for his dinner. This can be represented by the system of inequalities shown below, where y is the amount of tip and x is the cost of the dinner.

$$y > 0.08x$$

$$y < 0.2x$$

Which of the following is a true statement?

- ☐ a. When the cost of the dinner (x) is \$10, the amount of the tip (y) must be between \$2 and \$8.
- ☒ b. When the cost of the dinner (x) is \$15, the amount of the tip (y) must be between \$1.20 and \$3.00.
- ☐ c. When the cost of the tip (y) is \$3, the amount of the dinner (x) must be between \$11 and \$23.
- ☐ d. When the cost of the tip (y) is \$2.40, the amount of the dinner (x) must be between \$3 and \$6.

22. The amount of calories from fat for one serving of pizza is shown below. Determine the equation to represent this information.

Calories in Pizza				
Amount of Fat (grams)	9	12	16	23
Calories from Fat	88	115	151	214

- ☐ A. $y = 3x + 80$
- ☐ B. $y = 14x + 126$
- ☒ C. $y = 9x + 7$
- ☐ D. $y = 3x + 27$