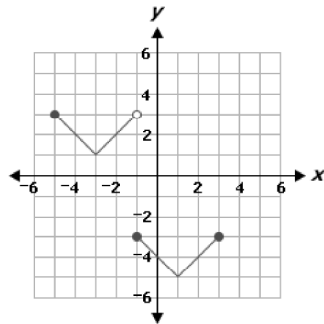


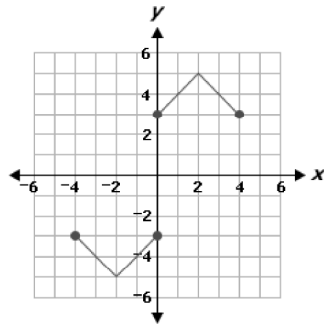
**Test 5 (Unit 7, 8, and 9) version 2****Question 1 .**

Which graph shows  $y$  as a function of  $x$ ?

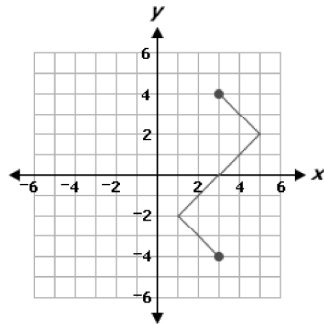
☐ A.



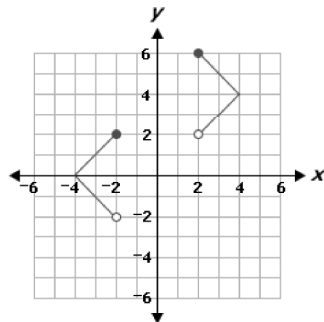
☐ B.



☐ C.



☐ D.



**Question 2 .**

Mary is buying soil and plants for her garden. The soil costs \$4 per bag and the plants cost \$10 each. She wants to buy at least 5 items, and can spend no more than \$100.

Which system of inequalities can be used to determine the number of bags of soil ( $s$ ) and the number of plants ( $p$ ) Mary can buy for her garden?

☐ A.  $p + s \leq 5$   
 $10s + 4p \geq 100$

☐ B.  $p + s \leq 5$   
 $4s + 10p \geq 100$

☐ C.  $p + s \geq 5$   
 $4s + 10p \leq 100$

☐ D.  $p + s \geq 5$   
 $10s + 4p \leq 100$

**Question 3 .**

Rick and Casey are buying fish at the local market for their restaurants. Rick buys 5 brook trout for  $x$  dollars each and 2 rainbow trout for  $y$  dollars each and pays \$160 for the fish. Casey buys 3 brook trout for  $x$  dollars each and 4 rainbow trout for  $y$  dollars each and pays \$194 for the fish. The system of equations shown below represents this situation.

$$5x + 2y = 160$$

$$3x + 4y = 194$$

Which statement is true?

- ☐ A. Rick spent more money on rainbow trout than he did on brook trout.
- ☐ B. A rainbow trout costs \$17 more than a brook trout.
- ☐ C. Casey spent 3 times as much on brook trout than he did on rainbow trout.
- ☐ D. Casey paid \$18 for each rainbow trout.

**Question 4 .**

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

$$(-4,1), (1,-4), (4,-7), (8,-11)$$

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

**Question 5 .**

The set of ordered pairs below is a relation.

$$\{(-3, -4), (-1, 0), (2, 1), (5, 3)\}$$

What is the range of the relation?

- ☐ A.  $\{-3, -1, 2, 5\}$
- ☐ B.  $\{-4, 0, 1, 3\}$
- ☐ C. {all real numbers between  $-3$  and  $5$ }
- ☐ D. {all real numbers between  $-4$  and  $3$ }

**Question 6 .**

The table below shows a pattern in the cost of renting a car based on the number of days rented.

**Car Rentals**

Number of Days ( $d$ )	Cost in Dollars ( $c$ )
4	161
5	195
6	229
7	263

The pattern continues. Which equation describes the pattern in the cost of renting a car?

- ☐ A.  $c = 68d + 25$
- ☐ B.  $c = 34d + 25$
- ☐ C.  $c = 68d + 43$
- ☐ D.  $c = 34d + 127$

**Question 7 .**

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

$x$	$y$
1	18
2	23
3	28
4	33
5	?

What is the missing term?

- ☐ A. 48
- ☐ B. 38
- ☐ C. 37
- ☐ D. 43

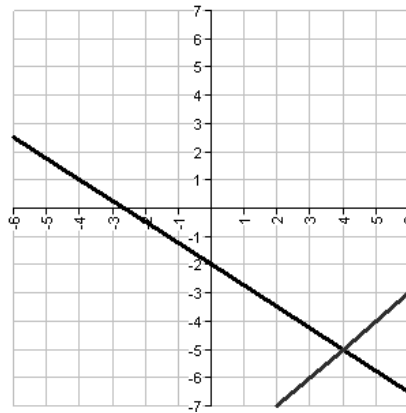
**Question 8 .**

The following system of equations is graphed below.

$$-3x - 4y = 8$$

$$-3x + 3y = -27$$

Find the solution to the system.



- ☐ A.  $x = 5, y = -5$
- ☐ B.  $x = -5, y = 4$
- ☐ C.  $x = 4, y = -4$
- ☐ D.  $x = 4, y = -5$

**Question 9 .**

Which of the following relations is a function?

- ☐ A. (6, 1), (-5, 4), (3, 1), (6, 2)
- ☐ B. (3, 4), (-5, 6), (3, 3), (-7, 2)
- ☐ C. (3, 4), (-5, 2), (6, 1), (-7, 2)
- ☐ D. (3, 0), (-5, 3), (6, 1), (-5, 5)

**Question 10 .**

(-3,1)  
(1,-7)  
(6,-17)  
(9,-23)

What is the domain of the set of ordered pairs above?

- ☐ A. {-3, 1, 6, 9}
- ☐ B. {-3, 1}
- ☐ C. {1, -7, -17, -23}
- ☐ D. {-3, 1, 6}

**Question 11 .**

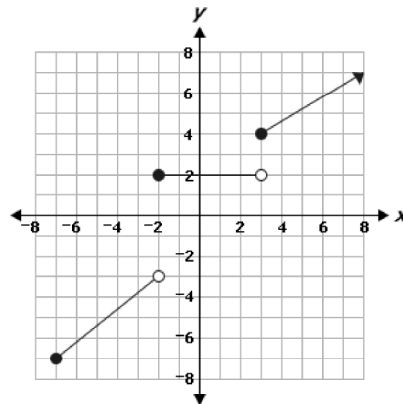
Use elimination to find the solution to the system of equations.

$$\begin{aligned}4x + 3y &= 20 \\ 2x - 8y &= 10\end{aligned}$$

- ☐ A.  $x = 5, y = 0$
- ☐ B.  $x = 3, y = \frac{8}{3}$
- ☐ C.  $x = 21, y = 4$
- ☐ D.  $x = 25, y = 5$

## Question 12 .

The graph of a function is shown below.



Which value is **not** in the domain of the function?

- ☐ A. -8
- ☐ B. -7
- ☐ C. 3
- ☐ D. 8

## Question 13 .

Jonathan deposits between 15% and 25% of the money he makes from mowing lawns into a savings account each month. This can be represented by the system of inequalities shown below, where  $y$  is the amount deposited into savings, in dollars, and  $x$  is the amount of money he makes mowing lawns, in dollars.

$$y > 0.15x$$

$$y < 0.25x$$

Which of the following is a true statement?

- ☐ A. When the amount of money he makes mowing lawns ( $x$ ) is \$125, the amount deposited into savings ( $y$ ) must be between \$187.50 and \$312.50.
- ☐ B. When the amount of money he makes mowing lawns ( $x$ ) is \$108, the amount deposited into savings ( $y$ ) must be between \$4.32 and \$7.20.
- ☐ C. When the amount deposited into savings ( $y$ ) is \$9.75, the amount of money he makes mowing lawns ( $x$ ) must be between \$39 and \$65.
- ☐ D. When the amount deposited into savings ( $y$ ) is \$18.75, the amount of money he makes mowing lawns ( $x$ ) must be between \$281.25 and \$468.75.

## Question 14 .

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

input	output
12	1,728
14	2,744
16	4,096
18	5,832
20	8,000

- ☐ A. 1,728, 2,744, 4,096, 5,832, 8,000
- ☐ B. 12, 10, 8, 6, 4
- ☐ C. 3, 5, 7, 9, 11
- ☐ D. 12, 14, 16, 18, 20

## Question 15 .

The freshman class is planning a field trip. The class can either visit the aviation museum or the local arboretum. At the aviation museum, tickets cost \$18 each, plus a flat rate of \$45 for parking all the buses. At the arboretum, tickets cost \$11 each, plus a flat rate of \$63 for parking all the buses.

Let  $x$  represent the number of people going on the field trip, and let  $y$  represent the total cost of the field trip. Which system of equations could be used to find how many people can go on either field trip so that both field trips have the same cost?

- ☐ A.  $y = 45x + \$18$   
 $y = 63x + \$11$
- ☐ B.  $y = 18x + \$45$   
 $y = 11x + \$63$
- ☐ C.  $y = 11x + \$45$   
 $y = 18x + \$63$
- ☐ D.  $y = 18x + \$11$   
 $y = 45x + \$63$

**Question 16 .**

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

16, 20, 24, 28, 32, ...

What is the next term of the pattern?

- ☐ A. 36
- ☐ B. 34
- ☐ C. 35
- ☐ D. 38

**Question 17 .**

Simplify.

$$\sqrt{200}$$

- ☐ A.  $10\sqrt{2}$
- ☐ B.  $100\sqrt{2}$
- ☐ C.  $20\sqrt{10}$
- ☐ D.  $2\sqrt{10}$

**Question 18 .**

Simplify the following expression.

$$\frac{x^2 - 14x + 48}{x - 8}$$

- ☐ A.  $x - 8$
- ☐ B.  $x^2 - 28x - 40$
- ☐ C.  $x - 6$
- ☐ D.  $x^2 - 36x - 56$

**Question 19 .**

The first five terms of a pattern are given below.

21, 27, 33, 39, 45, .....

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

- ☐ A.  $27 - 6n$
- ☐ B.  $26 - 5n$
- ☐ C.  $16 + 5n$
- ☐ D.  $15 + 6n$

**Question 20 .**

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

$(-4,1)$  ,  $(0,-3)$  ,  $(6,-9)$  ,  $(10,-13)$

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

**Question 21 .**

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

$$30x - 5y = 90$$

$$60x + 5y = 450$$

- ☐ A.  $x = 18$
- ☐ B.  $x = 6$
- ☐ C.  $x = 12$
- ☐ D.  $x = 3$

## Question 22 .

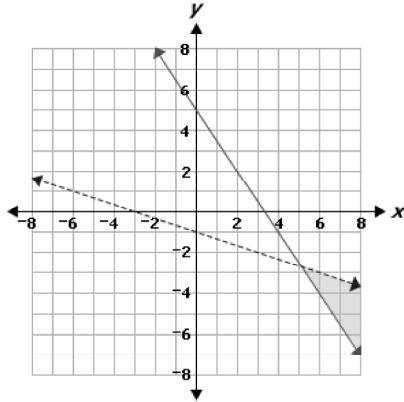
A system of inequalities is shown below.

$$y \leq \frac{-3}{2}x + 5$$

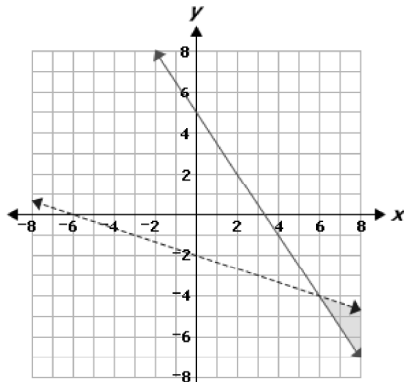
$$x + 3y > -6$$

Which graph represents the system?

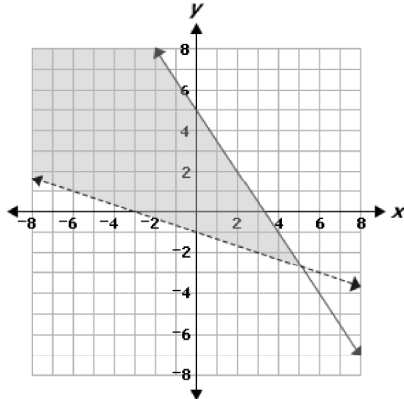
☐ A.



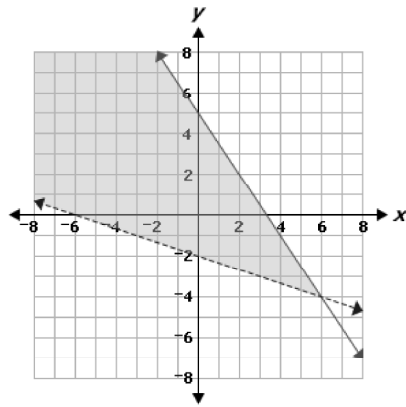
☐ B.



☐ C.

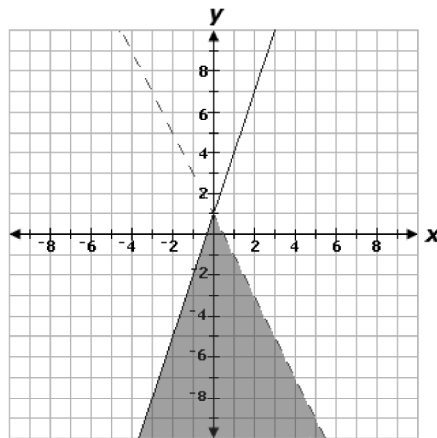


☐ D.



**Question 23 .**

The solution set to a system of linear inequalities is graphed below.



Which system of linear inequalities has the solution set shown in the graph?

- ☐ A.  $y \leq 3x + 1$   
 $y < -2x + 1$
- ☐ B.  $y < 3x + 1$   
 $y < -2x + 1$
- ☐ C.  $y < 3x + 1$   
 $y \leq -2x + 1$
- ☐ D.  $y \leq 3x + 1$   
 $y > -2x + 1$

# Answers

1. A
2. C
3. B
4. A
5. B
6. B
7. B
8. D
9. C
10. A
11. A
12. A
13. C
14. D
15. B
16. A
17. A
18. C
19. D
20. D
21. B
22. D
23. A