

Name: _____

Date: _____

Midterm Review Sheet (2018)

- Which of the following is the value of the expression $\frac{x^2 + 4}{2}$ when $x = -2$?
 - 0
 - 2
 - $-\frac{1}{2}$
 - 4
- If the expression $4x + 3$ is equal to 1 for some value of x , what is the expression $4x + 8$ equal to for the same value of x ?
 - 6
 - 11
 - 8
 - 7
- The product $(x - 10)(x + 2)$ is equivalent to
 - $x^2 - 20$
 - $x^2 - 8x + 20$
 - $2x - 8$
 - $x^2 - 8x - 20$
- Find the product of $(3x + 5)$ with $(2x - 3)$ in simplest form.
- Which of the following equations illustrates the associative property of addition?
 - $(3 + 7) + (2 + 8) = (7 + 3) + (8 + 2)$
 - $(5)(3 \cdot 4) = (5 \cdot 3)(4)$
 - $(4 + 5) + 5 = 4 + 10$
 - $2(5 + 4) = 10 + 8$

6.

Justify each of the following manipulations to combine two expressions by filling in the blanks with the associative property, the commutative property, or the distributive property.

$$5(2x+1)+2(3x+4)=(10x+5)+2(3x+4)$$

$$=(10x+5)+(6x+8)$$

$$=10x+(5+6x)+8$$

$$=10x+(6x+5)+8$$

$$=(10x+6x)+(5+8)$$

$$=(10+6)x+(5+8)$$

$$=16x+13$$

7.

The sum of three consecutive integers is 12 more than twice the largest integer. Which of the following equations could be used to find the three integers?

(1) $n+n+1+n+2=2n+2+12$

(2) $n+n+2+n+4=2(n+4)+12$

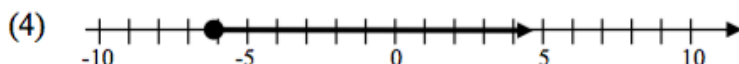
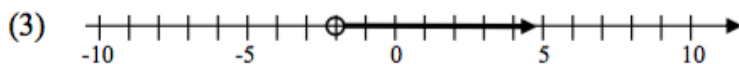
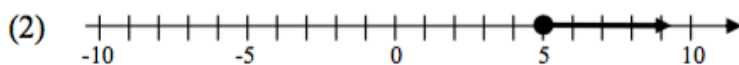
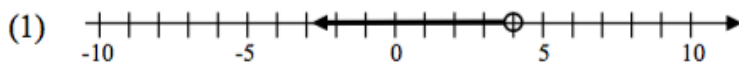
(3) $n+n+1+n+3=2n+3+12$

(4) $n+n+1+n+2=2(n+2)+12$

8.

If the inequality $-8 < x \leq 10$ was placed in interval notation it would be represented by

9. Which of the following graphs shows the solution set to $-2x + 8 < 12$?



10. The area of a triangle is given by the formula $A = \frac{1}{2}bh$. Solve this equation for the height, h , in terms of the base, b , and area, A .

11. Solve the following equation for x . Show the manipulations that lead to your final answer.

$$6(x+1) - 2x - 1 = (x+15) + (x+16)$$

12. A function is initially defined by the set of coordinate pairs $\{(-3, 7), (1, 5), (4, 13)\}$. Which coordinate pair below, if added to this set, prevents the set from representing a function?

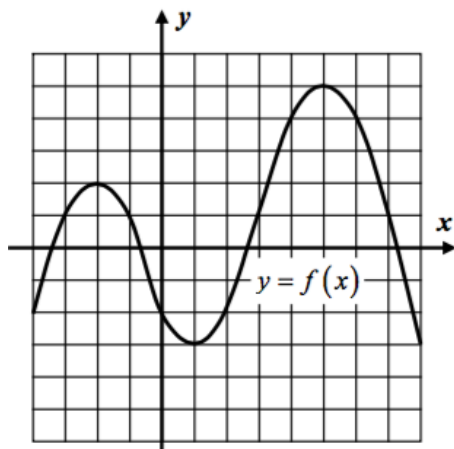
(1) $(2, 5)$

(3) $(-1, 8)$

(2) $(5, 0)$

(4) $(1, -4)$

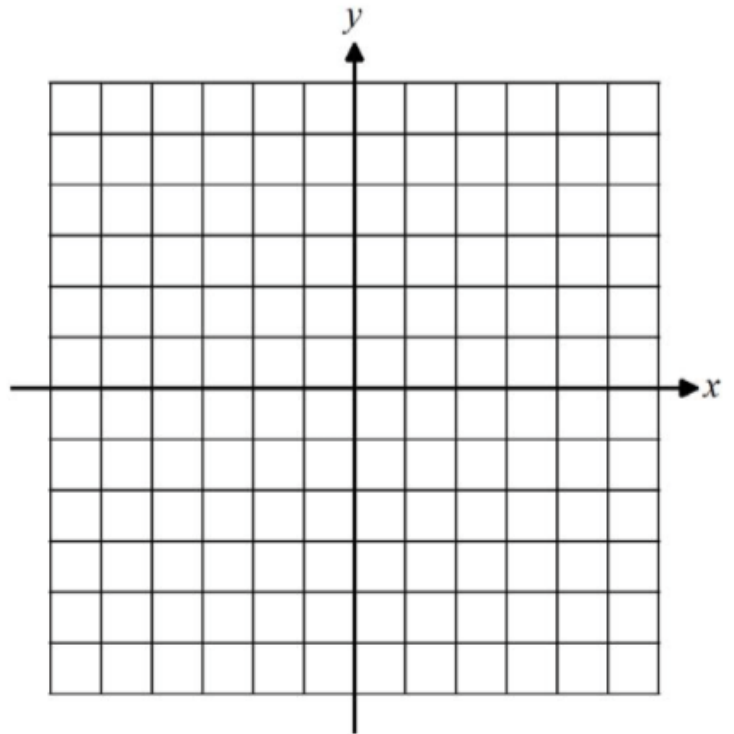
13. What is the domain and range of the following function?



14.

Graph the piecewise function shown below on the axes provided. Show a table of values.

$$f(x) = \begin{cases} -2x - 4 & -4 \leq x < -1 \\ x - 1 & -1 \leq x \leq 5 \end{cases}$$



15.

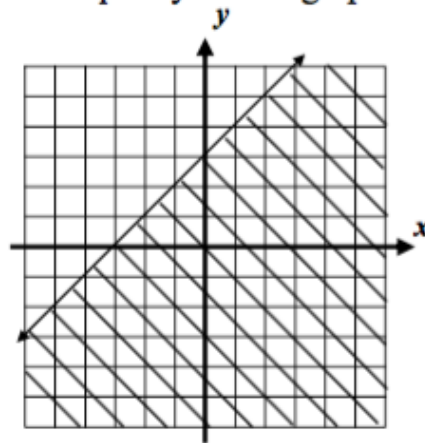
Which of the following is the equation of the inequality shown graphed below?

(1) $y < x + 3$

(2) $y \leq x + 3$

(3) $y > x + 3$

(4) $y \geq x + 3$



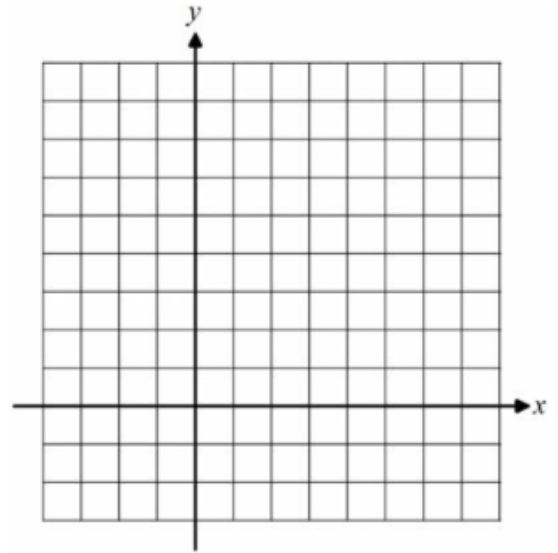
16.

If graphed in the coordinate plane, would the line $y = 5x - 2$ pass through the point $(4, 15)$? Explain how you arrived at your answer.

17.

Graph the line $3y - 2x = 3$ on the axes provided.

At what value of x does the line you graphed intersect the line $y = 5$. Show how you determined your answer.



18. Given the following expressions:

I. $-\frac{5}{8} + \frac{3}{5}$ III. $(\sqrt{5}) \cdot (\sqrt{5})$

II. $\frac{1}{2} + \sqrt{2}$ IV. $3 \cdot (\sqrt{49})$

Which expression(s) result in an irrational number?

- (1) II, only (3) I, III, IV
(2) III, only (4) II, III, IV

19. When $(2x - 3)^2$ is subtracted from $5x^2$, the result is

- (1) $x^2 - 12x - 9$ (3) $x^2 + 12x - 9$
(2) $x^2 - 12x + 9$ (4) $x^2 + 12x + 9$