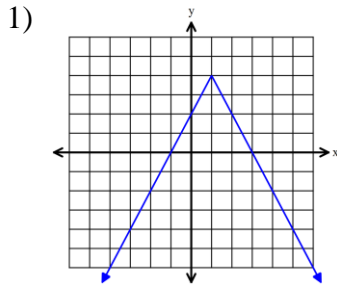


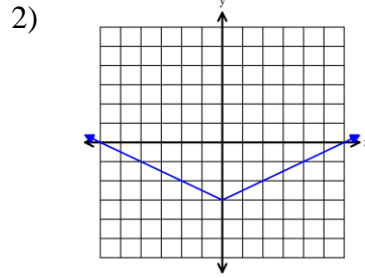
5.1 Worksheet

Name: _____ Per: _____

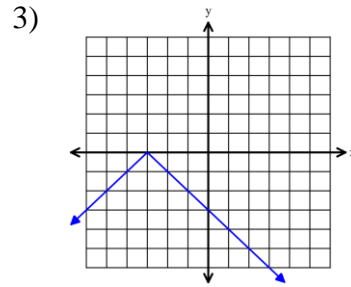
MATCHING: For # 1 – 4, match each graph to its equation. Not all equations will be used.



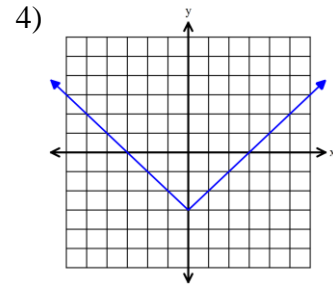
- A) $y = |x| - 3$
- D) $y = -|x| - 3$



- B) $y = -|x + 3|$
- E) $y = -2|x - 1| + 4$



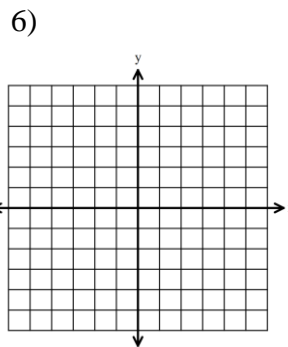
- C) $y = \frac{1}{2}|x| - 3$
- F) $y = |x| + 3$



For # 5 – 16, (evens) sketch each function, (odds) identify the vertex, find the domain and range, and describe the transformation from the parent function.

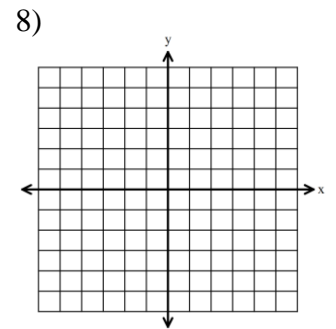
5) $y = \frac{1}{3}|x - 2| - 6$

Vertex:
Domain:
Range:
Transformation:



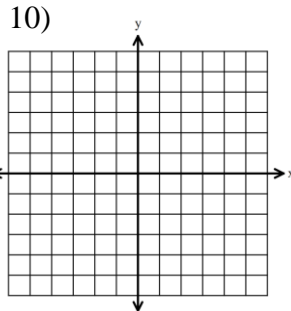
7) $y = -|x| + 3$

Vertex:
Domain:
Range:
Transformation:



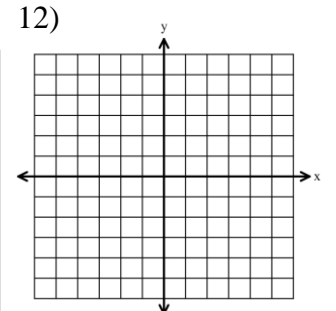
9) $y = 2|x + 4| + 1$

Vertex:
Domain:
Range:
Transformation:



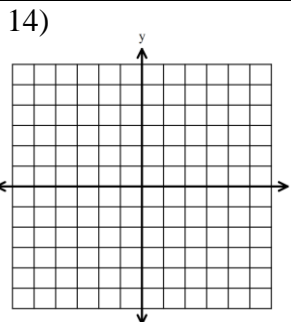
11) $y = -3|x - 5|$

Vertex:
Domain:
Range:
Transformation:



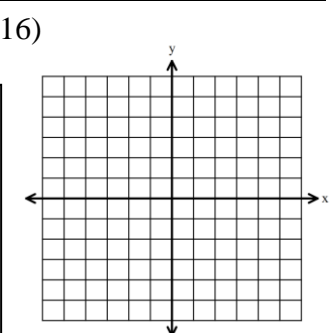
13) $y = |x + 3| - 6$

Vertex:
Domain:
Range:
Transformation:



15) $y = -\frac{2}{3}|x| + 5$

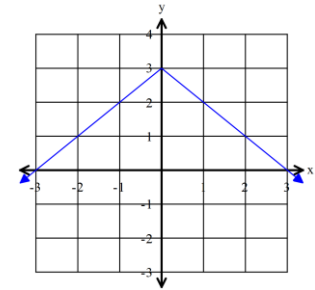
Vertex:
Domain:
Range:
Transformation:



17) Write an absolute value equation that is vertically stretched by a factor of 5 and shifted up 3 and left 2 from the parent function $y = |x|$.

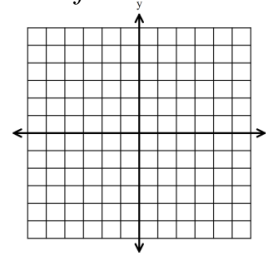
18) Which statement below is true for the graph shown?

- A) The range is all real numbers.
 B) The range is $y \geq 3$.
 C) The range is $y \leq 3$.
 D) The range is $y \leq -3$.



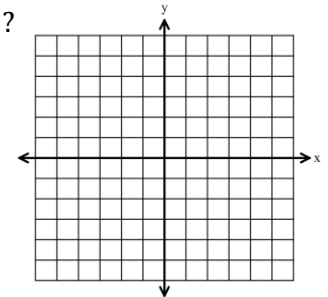
19) Which equation below has a range of $y \geq 5$? *Hint: draw a sketch of each!*

- A) $y = |x| - 5$ B) $y = |x + 2| + 5$
 C) $y = -|x| + 5$ D) $y = -|x + 5| - 2$

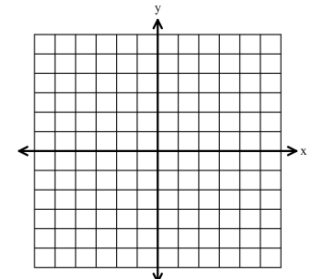


20) Which of the following statements is **not** true about the function $y = -|x - 5| + 2$?
Hint: draw a sketch!

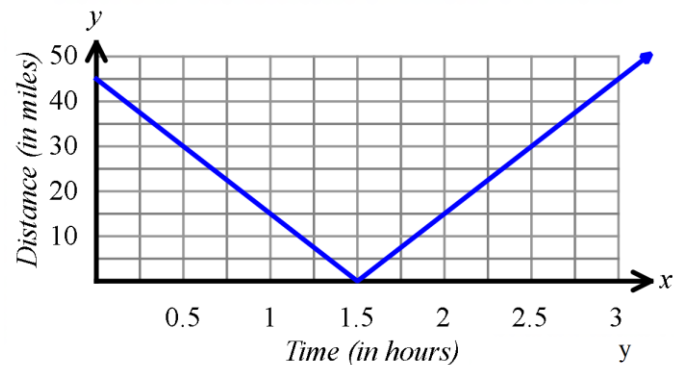
- A) The function is a V-shaped graph.
 B) The function opens downward.
 C) The graph is translated left 5 units from the parent function.
 D) The vertex is at (5, 2).



21) Translate the graph of $f(x) = |x + 4| - 1$ three units to the right and two units up. Write the function after the translation. A graph is provided if needed.

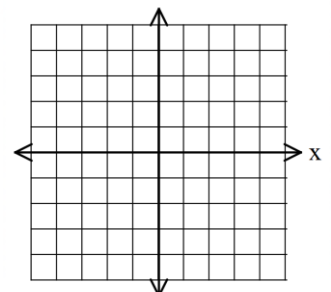


22) Jenni travels by boat to visit her friend. The graph shows the distance in miles that Jenni is away from her friend's location. At what time(s) is Jenni 15 miles away from her friend?



BONUS:

The equation $y = |x|$ is shifted up 1 unit, left 5 units, and is then reflected over the x -axis. What is the equation of the new graph?



5.4 Worksheet

Name: _____ Per: _____

For #1 – 6, solve each proportion.

1) $\frac{x}{6} = \frac{11}{7}$

2) $\frac{5}{x-2} = \frac{4}{3}$

3) $\frac{x+1}{10} = \frac{x-3}{8}$

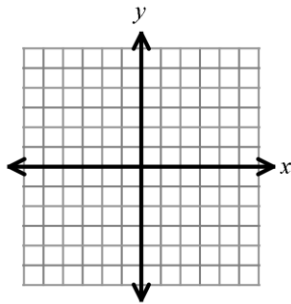
4) $\frac{5}{x} = \frac{3}{x+4}$

5) $\frac{12}{7x} = \frac{3}{2}$

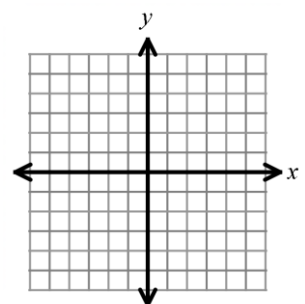
6) $\frac{2x-3}{x+6} = \frac{5}{2}$

For #7 – 10, solve each absolute value equation by graphing.

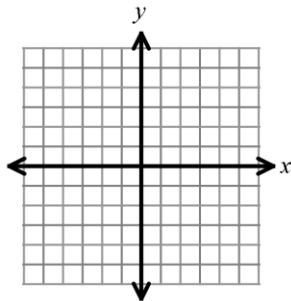
7) $|x + 1| = 5$



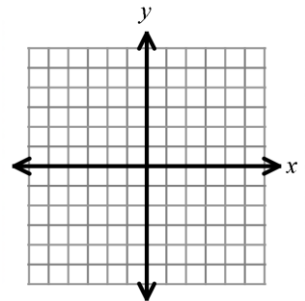
8) $|x - 3| = -4$



9) $-2|x| + 3 = -1$



10) $-|x - 1| = -3$



11) Solve #9 algebraically by isolating x . Hint: there are 2 answers!

12) Write the equation of the line, in (h, k) form, that is parallel to $y = 3x - 2$ and passes through $(7, 1)$.

13) The function $y = |x|$ is reflected in the x -axis, stretched by a factor of 3, shifted to the left 6, and shifted up 5. Write the equation of the resulting function. Use $y = a|x - h| + k$.

14) Given $f(x) = 2|x|$ and $h(x) = -2|x - 5|$, then describe the transformations on $f(x)$ to create $h(x)$.
Hint: there are 2 transformations.

Bonus: Given $f(x) = -\frac{1}{6}h(x - 3) + 2$. Describe in words the transformations on $h(x)$ to create $f(x)$.
Hint: there are 4 transformations.

5.5 Worksheet (old 1.7)

Name: _____ Per: _____

1 – 3: Solve for x in each equation below.

1) $|x| = 6$

2) $|2x - 5| = 6$

3) $|x| + 5 = 19$

4) $|x| = -8$

5) $|2x + 1| = 12$

6) $4|x| = 20$

7) $2|x + 5| = 6$

8) $5|x| - 3 = 6$

9) $5|x| + 11 = 9$

10) $\frac{1}{3}|x| - 4 = 6$

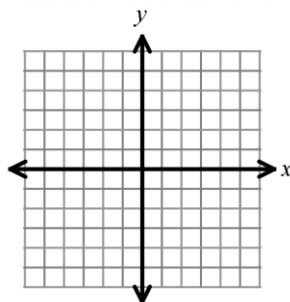
11) $|x| + 12.5 = 10$

12) $-4|x| - 1 = -21$

13) Solve for x : $\frac{4}{x+1} = \frac{3}{x}$

14) Identify the vertex, domain, and range: $y = 2|x - 4| - 1$

15) Graph the function $y = -\frac{1}{3}|x + 2| + 4$



5.6 Worksheet (Spiral Review)

Name: _____ Per: _____

For #1 – 2, List the properties used for each step to solve for x . Choices: Addition Property of Equality, Subtraction Property of Equality, Multiplication Property of Equality, Division Property of Equality, Distributive Property, Associative Property, Commutative Property

1)

Solution	Property used
$\frac{2x + 1}{3} + 1 = 9$	Given equation
$\frac{2x + 1}{3} = 8$	
$2x + 1 = 24$	
$2x = 23$	
$x = \frac{23}{2}$	

2)

Solution	Property used
$17 + (3 + 2x) = -4(x - 1)$	Given equation
$17 + (3 + 2x) = -4x + 4$	
$(17 + 3) + 2x = -4x + 4$	
$20 + 2x = -4x + 4$	Combine like terms
$20 + 6x = 4$	
$6x = -16$	
$x = -\frac{8}{3}$	

For #3 – 4, graph each function and identify the requested information.

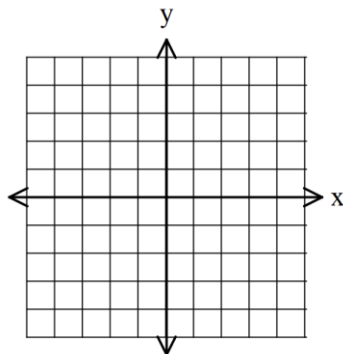
3) $y = \frac{1}{3}|x| - 5$

Vertex:

D:

R:

Transformations:



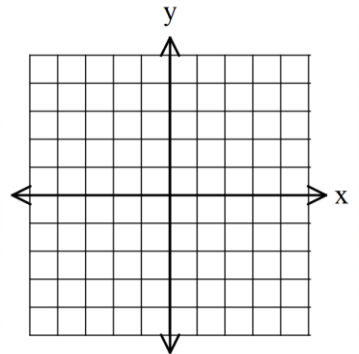
4) $y = -2|x + 1| + 4$

Vertex:

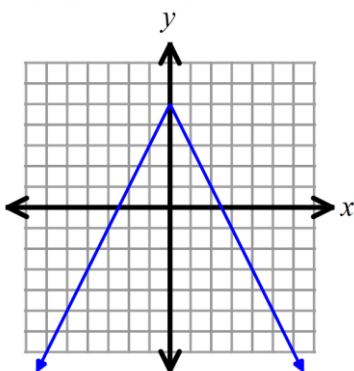
D:

R:

Transformations:

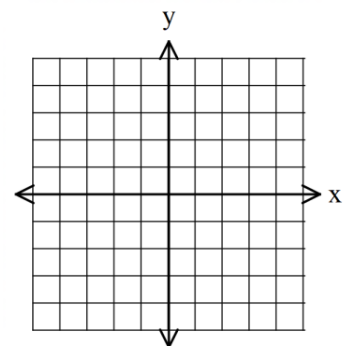


5) Write the equation of the graph shown.



6) What is the range of $f(x) = -3|x - 2| + 1$?

- A) $y \leq 1$
- B) $y \geq 1$
- C) $y \leq 2$
- D) $y \geq 2$



7) Amanda starts off with \$530 in her savings account, and she puts in \$60 into her savings account each month. Which formula below represents this situation, if n is the number of months after she starts saving?

- A) $f(n) = 530 - 60n$ C) $f(n) = 530 + 60n$
 B) $f(n) = 590 + 60n$ D) $f(n) = 590 - 60n$

8) Which sequence below matches the explicit formula? $f(n) = -5 + 6n$

- A) $-5, 1, 7, 13, \dots$ C) $1, 7, 13, 19, \dots$
 B) $-11, -5, 1, 7, 13, \dots$ D) $6, 1, -4, -9, \dots$

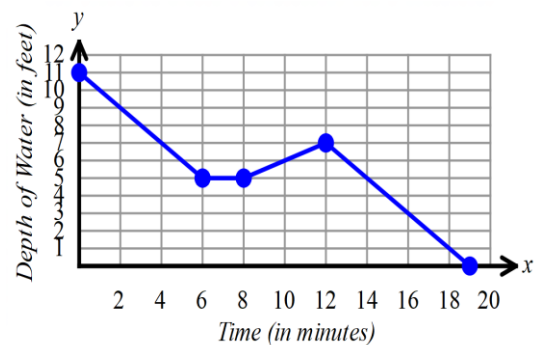
9) Harold is going to purchase t-shirts for a school fundraiser, and he is considering two companies. Company A charges \$8 per shirt, plus a set-up fee of \$100. Company B charges \$6 per shirt, plus a set-up fee of \$140. At how many shirts would Harold pay the same price for either company?

10) A landscaping company placed two orders with a nursery. The first order was for 13 bushes and 4 trees, and totaled \$487. The second order was for 6 bushes and 2 trees, and totaled \$232. The bills do not list the per-item price. Which of the following systems of equations represents this situation, with x representing the price of each bush, and y representing the price of each tree?

- A) $\begin{cases} 13x + 4y = 487 \\ 6x + 2y = 232 \end{cases}$ B) $\begin{cases} 13x + 4y = 232 \\ 6x + 2y = 487 \end{cases}$ C) $\begin{cases} 13x + 4y = 487 \\ x + y = 232 \end{cases}$ D) $\begin{cases} x + y = 487 \\ 6x + 2y = 232 \end{cases}$

11) Solve: $3x - 2(x + 7) = 5x - 14 - 4x$

For #12 – 14: Water is drained out of a pool, and the graph below shows the depth of the water in the pool at various times x .



12) At one point, leaves clogged up the drain, and no water was being drained out of the pool. At what time did the water first stop draining out of the pool?

13) In order to loosen the leaves clogging up the drain, extra water was added to the pool. After the leaves were removed from the drain, the water started again draining out of the pool. At what time did the drain start working again?

14) Which of the following statements is true? Choose all that apply.

- A) The rate of change of the depth of the water was positive for $8 \leq x \leq 12$ minutes.
 B) The rate of change of the depth of the water was negative for $0 \leq x \leq 8$ minutes.
 C) The rate of change of the depth of the water was 0 from $6 \leq x \leq 8$ minutes.
 D) It took 20 minutes for the water to completely drain out of the pool.

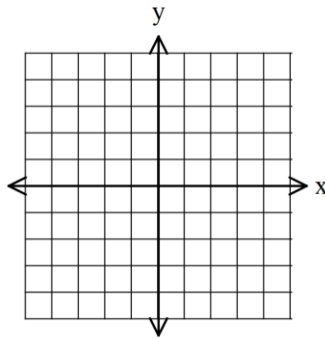
Chapter 5 Practice Test

Name: _____ Per: _____

For # 1 – 4, sketch each function, identify the vertex, find the domain and range, and describe the transformation from the parent function.

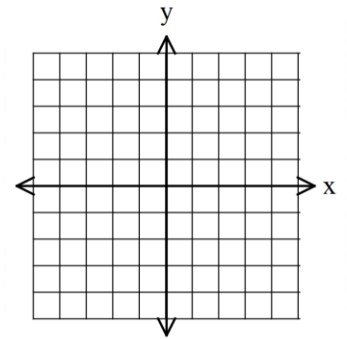
1) $y = -\frac{1}{3}|x + 1| + 4$

Vertex:
Domain:
Range:
Transformation:



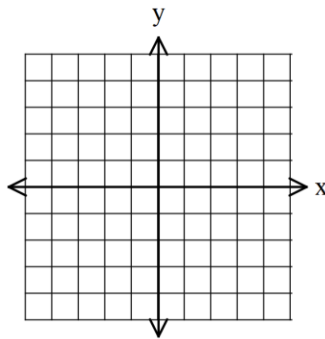
2) $y = |x| - 5$

Vertex:
Domain:
Range:
Transformation:



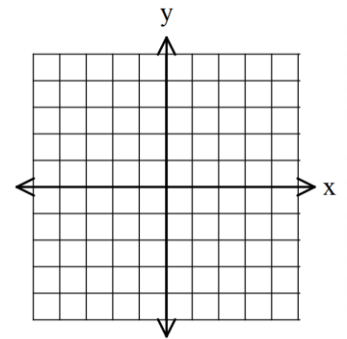
3) $y = 2|x + 2| - 3$

Vertex:
Domain:
Range:
Transformation:



4) $y = -2|x - 2| + 5$

Vertex:
Domain:
Range:
Transformation:



5) The function $y = |x|$ is reflected across the x -axis, vertically compressed by a factor of $\frac{1}{4}$, then translated up 3 units and right 2 units. What is the new equation for the translation?

- A) $y = \frac{1}{4}|x + 2| + 3$
- B) $y = \frac{1}{4}|x - 2| + 3$
- C) $y = -\frac{1}{4}|x - 2| + 3$
- D) $y = -\frac{1}{4}|x + 2| + 3$

6) The function $y = |x|$ is reflected across the x -axis, then translated left 3 units and down 4 units. What is the new equation for the translation?

- A) $y = -|x + 3| - 4$
- B) $y = -|x - 3| - 4$
- C) $y = |x - 3| - 4$
- D) $y = |x + 3| - 4$

7) Which equation below has a range of $y \geq 2$?

- A) $y = |x| - 2$
- B) $y = |x + 5| + 2$
- C) $y = -|x| + 2$
- D) $y = -|x + 2| - 2$

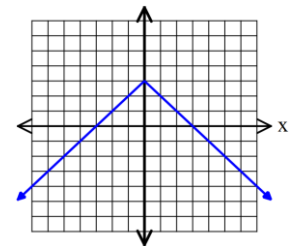
8) Which of the following equations best describes the graph shown?

- A) $y = -|x + 3|$
- B) $y = |x| - 3$
- C) $y = -|x| + 3$
- D) $y = |x|$

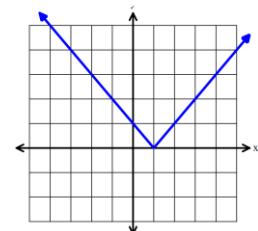
9) What is the *range* of the absolute value function shown?

- A) $y \geq 1$
- B) $y \leq 1$
- C) $y \leq 0$
- D) $y \geq 0$

#8 graph:



#9 graph:



For #10 – 12, solve for x :

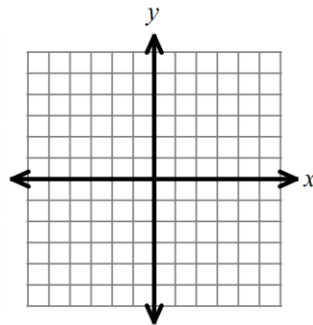
10) $\frac{x}{5} = \frac{3}{9}$

11) $\frac{5}{3x} = \frac{4}{x+1}$

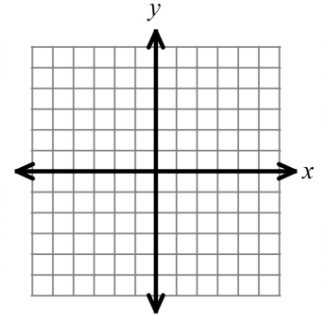
12) $\frac{2}{5x} = \frac{3}{x-2}$

For #13 – 14, solve each absolute value equation by graphing. Be sure to identify the solutions!

13) $-2|x| + 3 = -1$



14) $|x + 1| + 2 = -1$



15) Solve #19 algebraically.

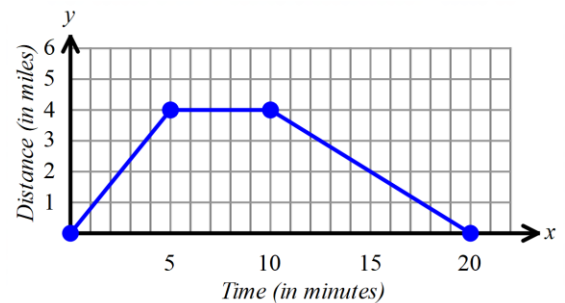
16) Solve #20 algebraically.

For #17 – 19: Andre drove his car to the store and back. The graph shows the distance he traveled, in miles, as a function of time, in minutes.

17) At what time did he arrive at the store?

18) How many minutes did he stay at the store?

19) Which of the following statements are true? *Choose all that apply.*



A. Andre was in the store from time $t = 5$ min to $t = 10$ min.

B. Andre's distance had a negative rate of change for the entire 20 minutes.

C. Andre's distance had a positive rate of change for the time t when $0 \leq t \leq 5$ minutes.

D. Andre's distance had a rate of change of 0 for the time t when $5 \leq t \leq 10$.

For #20 – 22, solve for the variable:

20) $|x| + 4 = 18$

21) $2|6x + 5| - 1 = 25$

22) $-1 = |x + 3| + 4$