SM2 Piecewise 2.3	Name

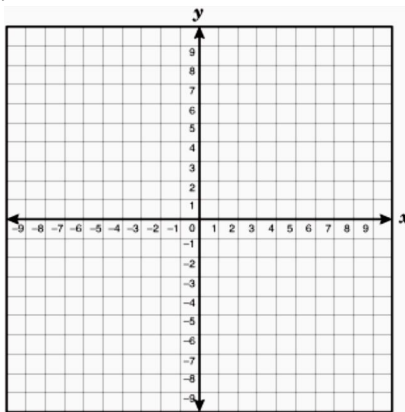**1. Graph the Following Piecewise Function.**

$y = |x + 4| - 2,\ x < 1$

$y = -2(x - 1) + 6,\ x \geq 1$
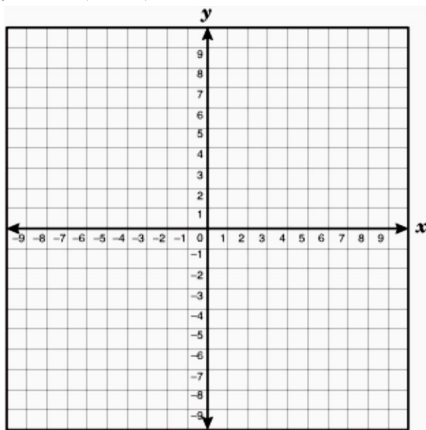
2. Graph the Following Piecewise Function.

$y = \frac{-1}{5}x + 4,\ x < -2$

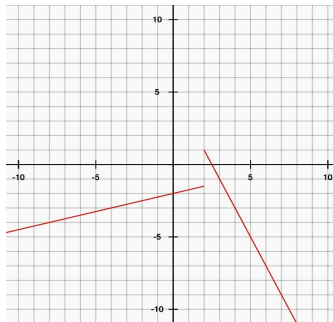$y = 3|x - 1| - 5,\ x \geq -2$

3. Find the equations of the following Piecewise Function:

f(x)=

_____when x<_____

_____when x≥____

4. Find the equations of the following Piecewise Function:

f(x)=
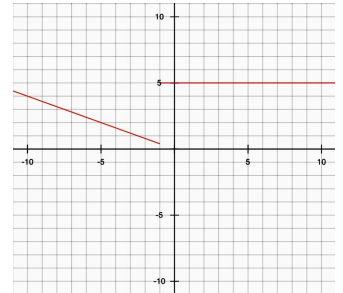
_____when x<_____

_____when x≥____

5. Graph the following Piecewise Function:

y = -⅜(x-4)+7 when x > 4

y=2|x-4|+ 7 when x ≤ 4
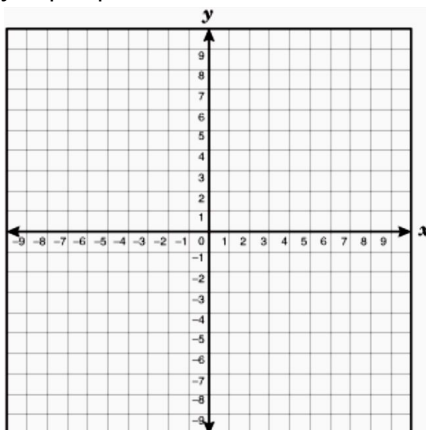
6. Graph the following Piecewise Function:

y =   -2   when x > -1

y=-2x   when x ≤ -1
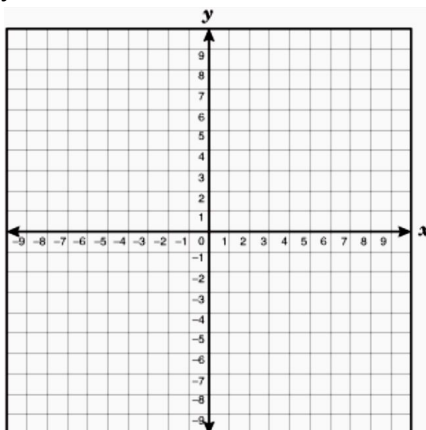
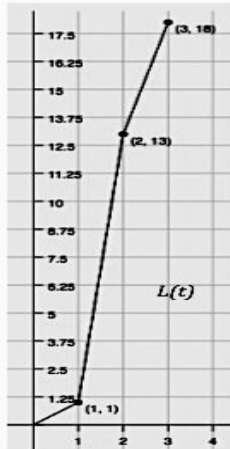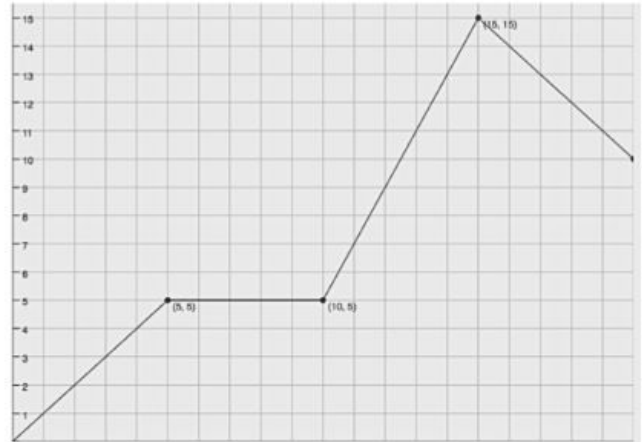**7.** Lexie completed an 18 mile triathlon. She swam 1 mile in 1 hour, bicycled 12 miles in 1 hour, and then ran 5 miles in 1 hour. The graph of Lexie's distance versus time is shown. Write a piecewise function $L(t)$ for the graph.

(3, 18)
(2, 13)
(1, 1)
$L(t)$

f(x)=

_____ when $0 < x \le$ _____

_____ when ___$< x \le 2$

_____ when ___$< x \le$ _____

8. Write a piecewise Function for the following graph.

(15, 15)
(5, 5)
(10, 5)

f(x)=

_____ when $0 < x \le$ _____

_____ when ___$< x \le$ _____

_____ when ___$< x \le$ _____

_____ when ___$< x \le$ _____

1.2 I Rule!
A Solidify Understanding Task

Marco has started a new blog about sports at Imagination High School (mascot: the fighting unicorns) that he has decided to call "I Site". He created a logo for the web site that looks like this:

 SITE

9. Find an equation for the pattern at the left, and then Find the number of tiles in Figure 100.
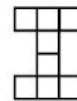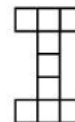

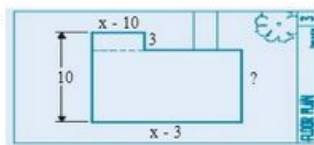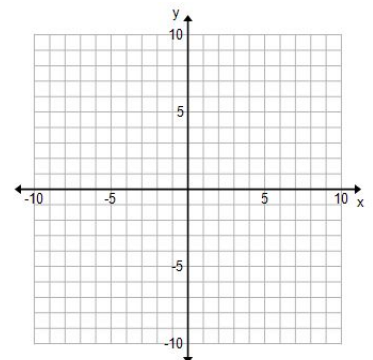Figure 1   Figure 2   Figure 3

10.

Write the perimeter of the floor plan shown as an algebraic expression in x.

x - 10
3
10
?
x - 3

The perimeter of the floor is ☐.
(Simplify your answer.)

11. Solve for y, then graph.

$3x - 2y = 16$

---

12. Solve for w.

$V = \frac{2}{5}\pi l w$

13. Find an equation of the line with slope of $-\frac{4}{3}$ and an x-intercept on -6.

14. You are running a stand to sell pop drinks. You buy $30 of pop, and you have to buy ice for $5, and cups for $ 8. You sell each cup for $1. (cups, $) Equation.

Write sentences for each of the following. Include exact numbers that go with it.
x-Intercept is (,   ) and what it represents in this situation.

y-Intercept is (,   ) and what it represents in this situation.

slope is _____ and what it represents in this situation.

15. We put a buggy car outside the classroom. we start it at 900 cm. It travels 51cm per minute. Complete the table.

Distance (d)	Time in minutes (t)
900	
798	
	4
	5

Write an equation using d and t for this situation.

16. The graph of $y = |x|$ has been reflected over the x-axis, Shrunk by a factor of 1/2, and is translated 3 units up and 1 units right. Write the equation of the function represented by the given transformations.

17. Given the equation, $y = 1/2|x + 5| + 3$, describe the transformation(s) involved from the parent function $y = |x|$.

(Circle the best underlined answer(s) and fill in the blank(s).)

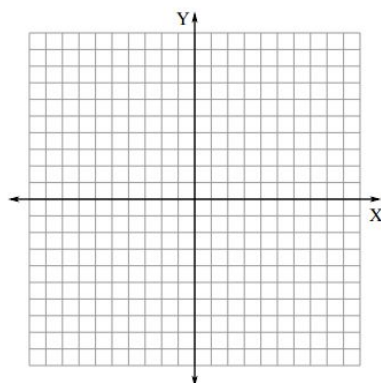Does the above have a reflection in the x-axis? Yes/No
The graph **stretches** / **shrinks** by a factor of ___and is translated_____ units **up** / **down** and _____ units **left** / **right**.
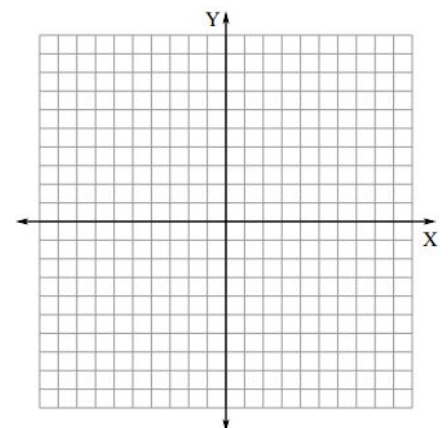
18. Graph and write the transformations:

a. $y = -2|x - 5| + 9$

b $y = 2/3(x + 9) - 6$

19. Graph:
$-3x + 2y = 12$

20. Equation of the Graph at the left:
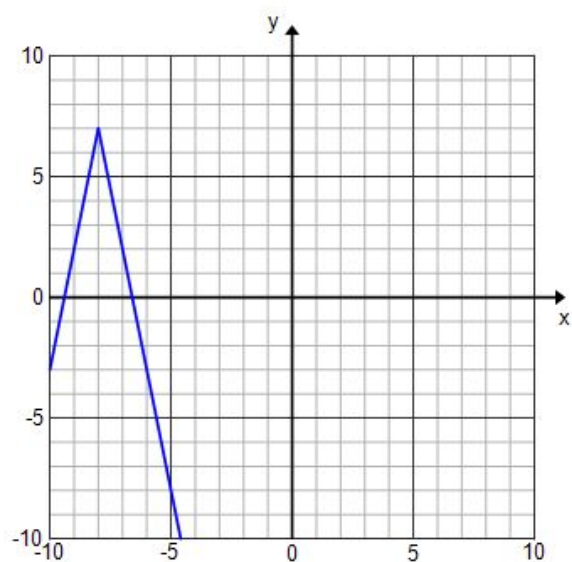
Y = _____

End Behavior:
$As\ x \to -\infty,\ y \to$

$As\ x \to \infty,\ y \to$

Domain:

Range:

Interval of increasing:

Interval of decreasing:

21. Us the following points to write the equation of the line in slope intercept form.
(3,14)   (-6,2)