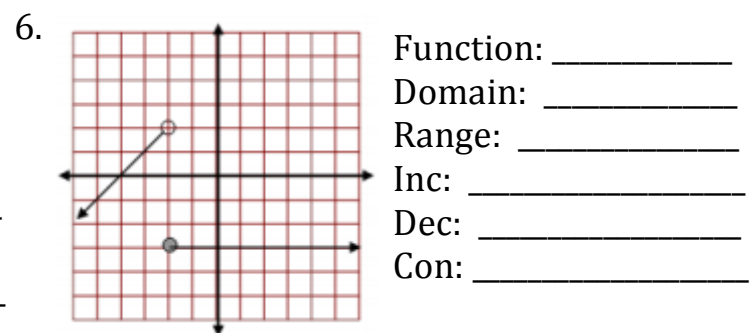
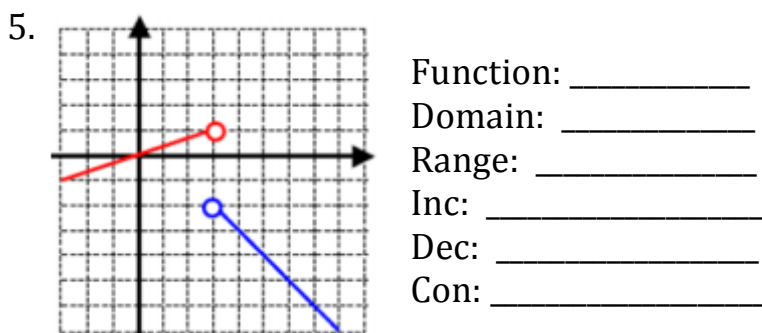
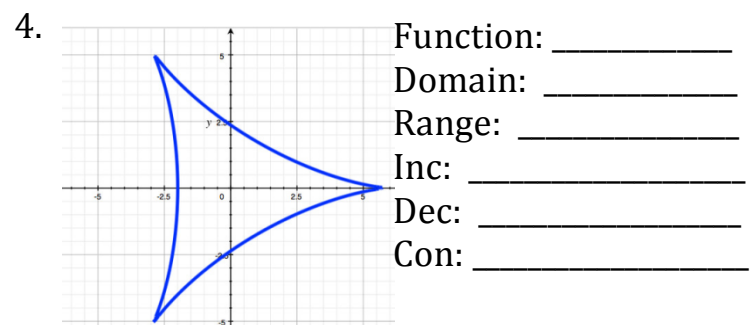
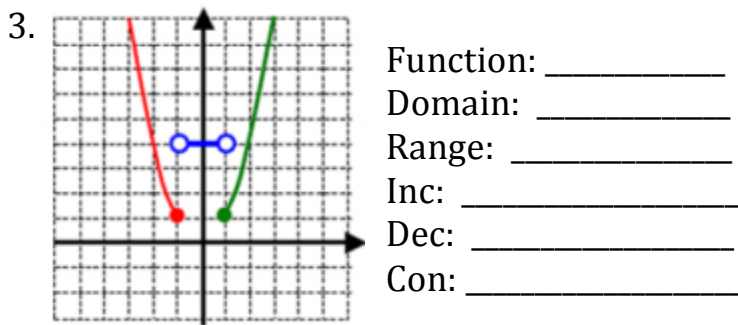
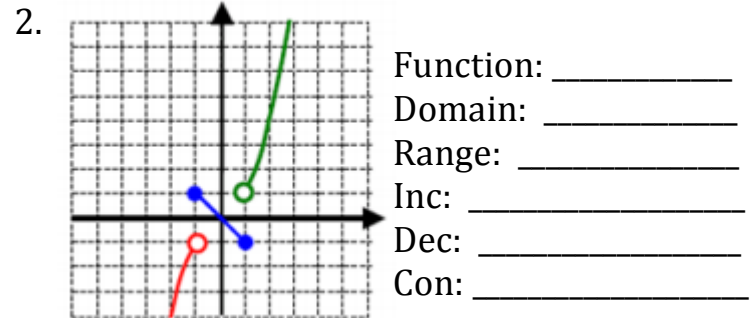
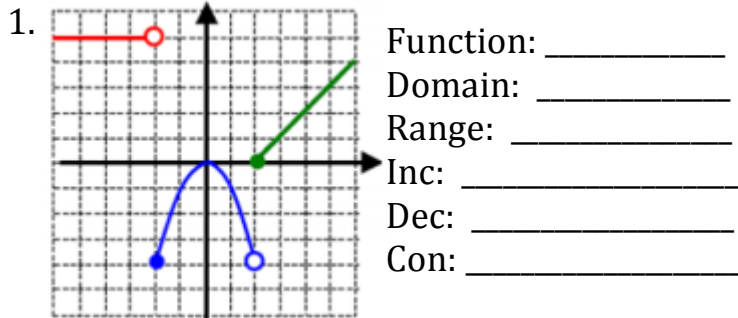
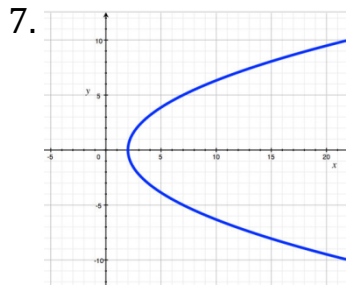
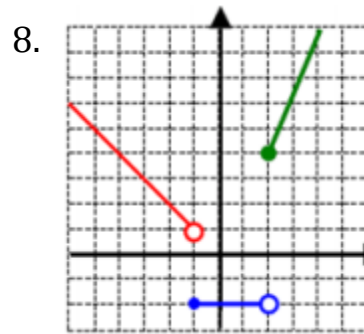


Directions: a) Determine if the graph is a function
b) Find the domain and range of the graph
c) Identify where the graph is increasing/decreasing/constant

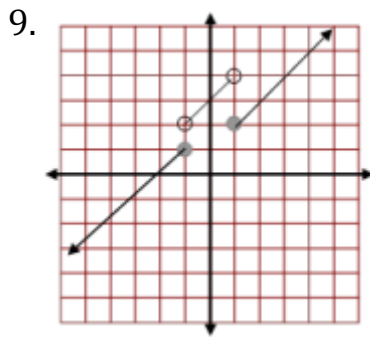




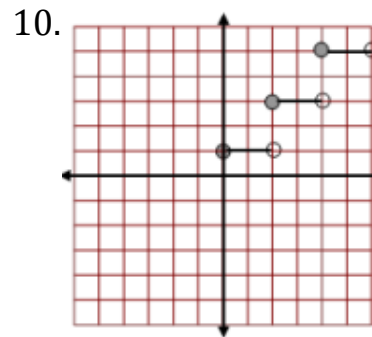
Function: _____
 Domain: _____
 Range: _____
 Inc: _____
 Dec: _____
 Con: _____



Function: _____
 Domain: _____
 Range: _____
 Inc: _____
 Dec: _____
 Con: _____



Function: _____
 Domain: _____
 Range: _____
 Inc: _____
 Dec: _____
 Con: _____



Function: _____
 Domain: _____
 Range: _____
 Inc: _____
 Dec: _____
 Con: _____

Find the domain of given functions.

1. $f(x) = x^2 + 1$

8. $f(x) = \frac{x}{\sqrt{x+3}}$

2. $f(x) = 5$

9. $h(x) = \frac{2x+4}{x^2-9}$

3. $f(x) = \frac{1}{x+1}$

10. $k(x) = \sqrt{x+4}$

4. $f(x) = x^3$

11. $p(x) = \frac{x+3}{\sqrt{x+4}}$

5. $y(c) = \frac{2}{c^2+3}$

12. $p(x) = \sqrt{x^2 + 4x - 5}$

6. $q(w) = \frac{w+4}{w^2+1}$

13. $g(x) = \frac{x+4}{x-4}$

7. $t(v) = \sqrt{v^2 + 2v - 8}$

14. $n(x) = \sqrt{8 - 2x}$

Evaluate each function.

1) $h(a) = a^2 + 2$; Find $h(-9)$

2) $w(a) = -4a + 2$; Find $w(8)$

3) $p(x) = x^2 - 5$; Find $p(8)$

4) $f(n) = 2n^2$; Find $f(-9)$

5) $h(t) = -2|3t - 1|$; Find $h(10)$

6) $k(t) = |2t|$; Find $k(-10)$

7) $h(x) = x^3 - 4x$; Find $h(2 - x)$

8) $g(x) = 4x - 4$; Find $g(x^2)$

9) $g(n) = 2n + 5$; Find $g(n + 2)$

10) $h(n) = -n^2 - 1$; Find $h(4n)$

11) $p(t) = t^2 - 2t$; Find $p(t - 1)$

12) $h(a) = -a^2 - 4$; Find $h(1 - a)$

AFM Homework
4-4 Parent Function Discovery

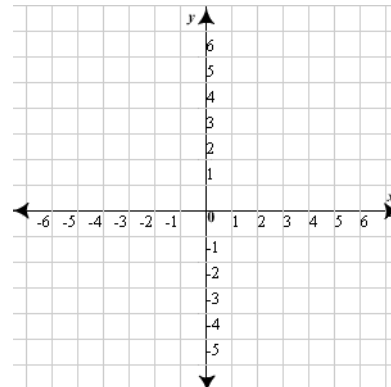
Name _____

Date _____ Period _____

1- 6 Give the name of the parent function and describe the transformation represented. Sketch a graph of the parent function and the new function.

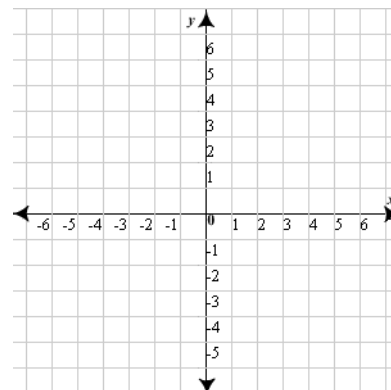
1. $g(x) = x^2 - 1$ Name: _____

Transformation: _____



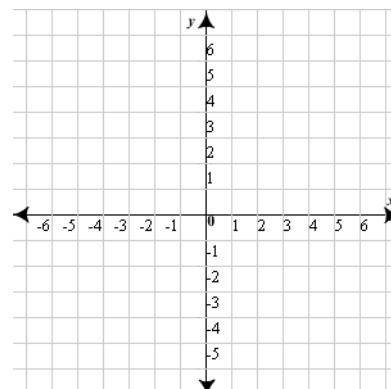
2. $f(x) = 2|x-1| - 3$ Name: _____

Transformation: _____



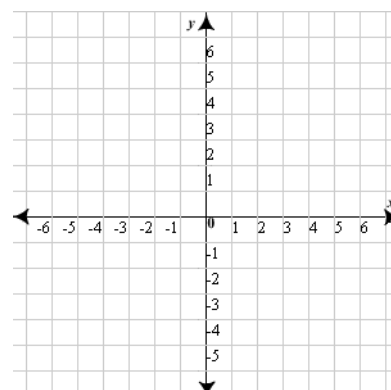
3. $h(x) = -\sqrt{x-2}$ Name: _____

Transformation: _____



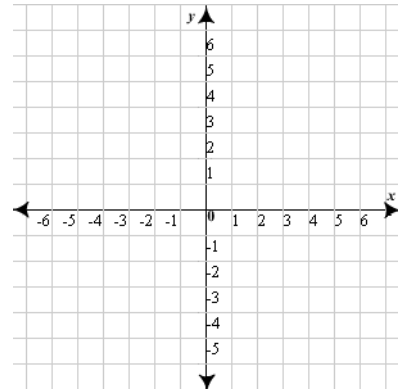
4. $g(x) = -x^3 + 3$ Name: _____

Transformation: _____



5. $f(x) = |x + 5| - 2$ Name: _____

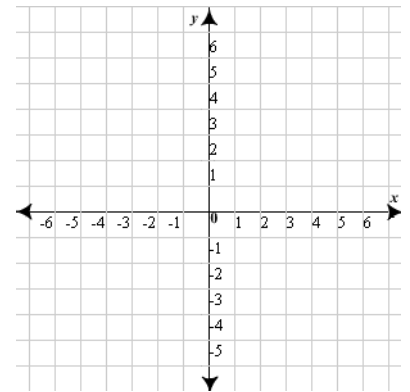
Transformation: _____



#6-8 Identify the domain and range of the function. Describe the transformation from its parent function.

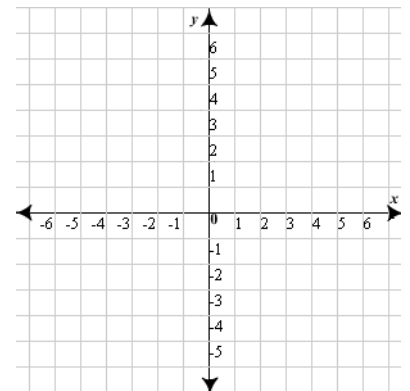
6. $g(x) = \sqrt{x} + 5$ Domain : _____ Range : _____

Transformations: _____



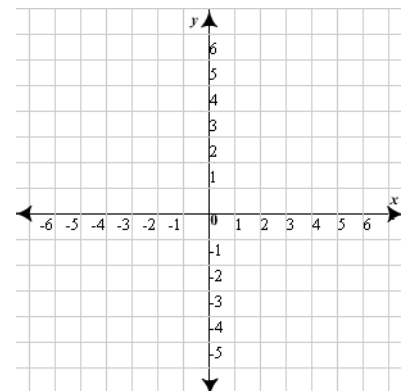
7. $h(x) = -x^2 + 1$ Domain : _____ Range : _____

Transformations: _____



8. $h(x) = -|x - 2|$ Domain : _____ Range : _____

Transformations: _____



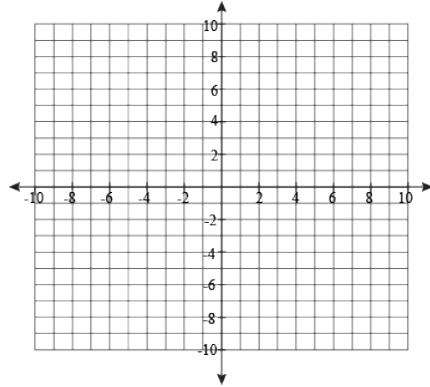
AFM Homework
4-5 Functions

Name _____

Date _____ Period _____

Draw the parent function using a dotted (- - -) line. Then sketch the final graph using a solid (- - - -) line. Describe each transformation and identify the domain and range of the final graph.

1. $f(x) = 2x^2 + 3$



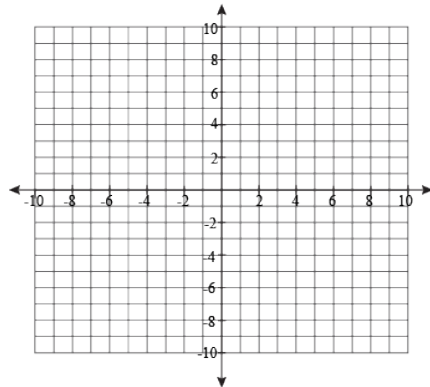
Parent Function: _____

Transformation: _____

Domain: _____

Range: _____

2. $f(x) = 3 - |x + 1|$



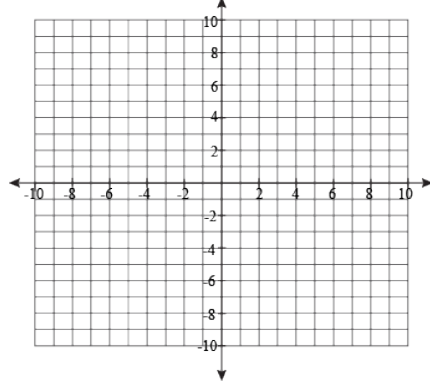
Parent Function: _____

Transformation: _____

Domain: _____

Range: _____

3. $f(x) = -\frac{1}{2}\sqrt{x + 3}$



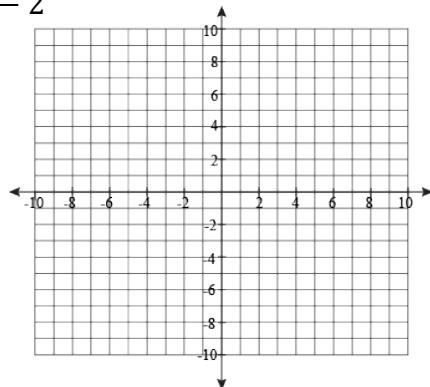
Parent Function: _____

Transformation: _____

Domain: _____

Range: _____

4. $f(x) = -(x^3 + 1) - 2$



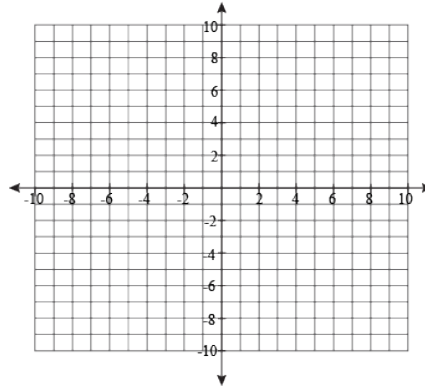
Parent Function: _____

Transformation: _____

Domain: _____

Range: _____

5. $g(x) = \frac{1}{3}x^2 - 4$



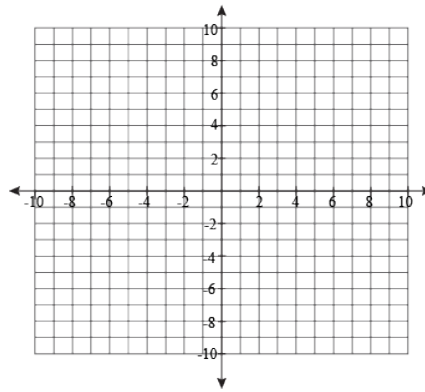
Parent Function: _____

Transformation: _____

Domain: _____

Range: _____

6. $y = \sqrt{4+x} - 1$



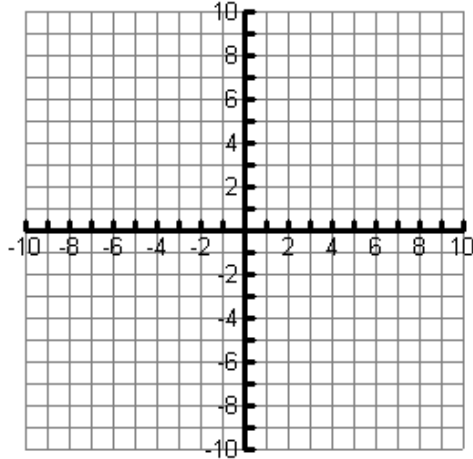
Parent Function: _____

Transformation: _____

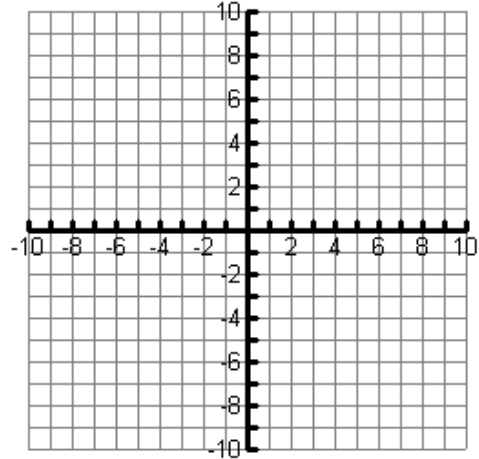
Domain: _____

Range: _____

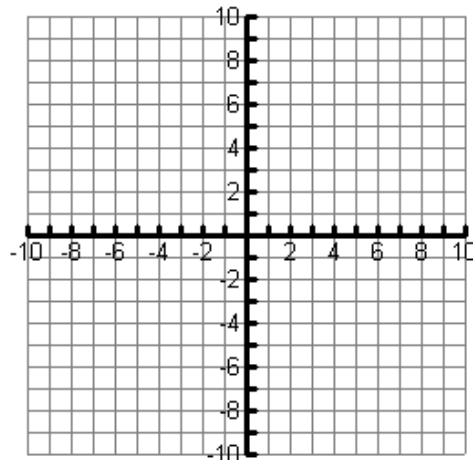
1. $f(x) = \begin{cases} -x & \text{if } x \leq 2 \\ x & \text{if } x > 2 \end{cases}$



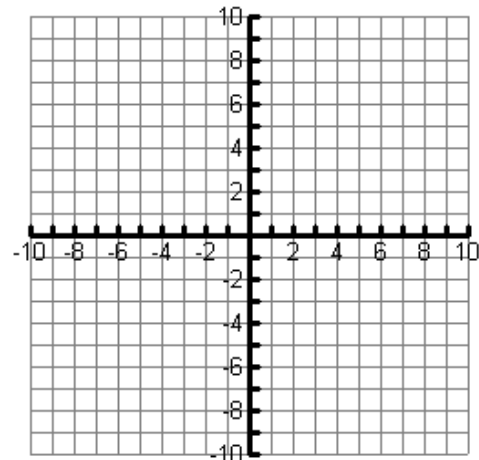
2. $f(x) = \begin{cases} 2, & x > -3 \\ -5, & x < -3 \end{cases}$



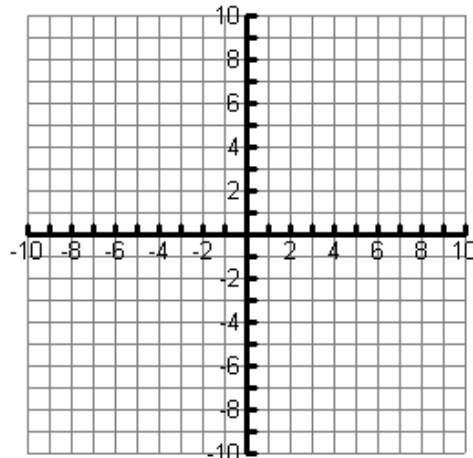
3. $f(x) = \begin{cases} -1, & x \leq -2 \\ 2, & x > -2 \end{cases}$



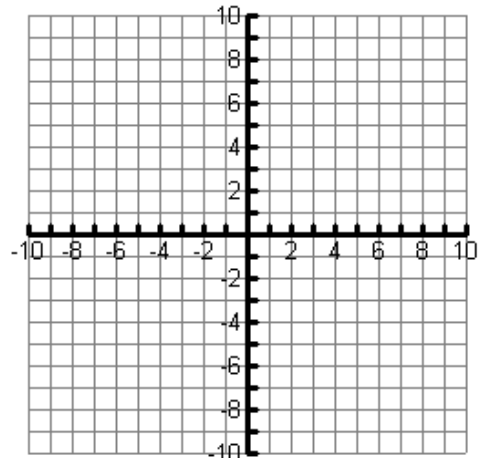
4. $f(x) = \begin{cases} -1, & x \leq -1 \\ 1, & -1 < x < 1 \\ x, & x > 1 \end{cases}$



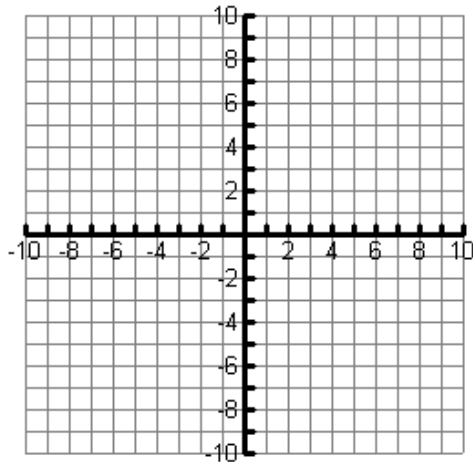
5. $f(x) = \begin{cases} -x + 2, & x \leq 0 \\ \frac{1}{2}x + 3, & x > 0 \end{cases}$



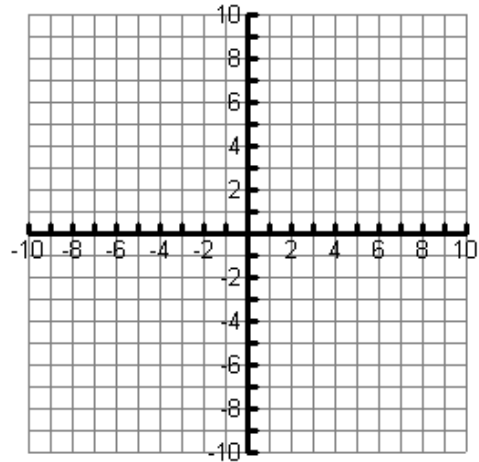
6. $f(x) = \begin{cases} x + 2, & x \leq 2 \\ -\frac{1}{2}x + 4, & x > 2 \end{cases}$



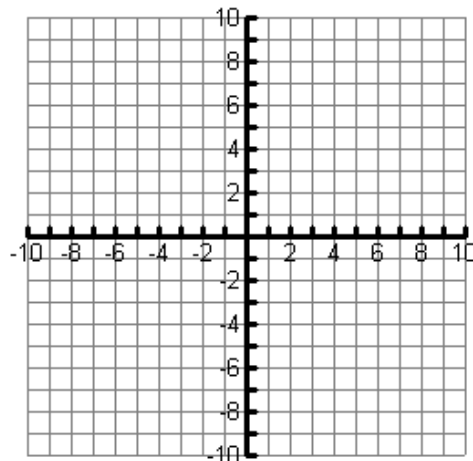
7. $f(x) = \begin{cases} -3x - 4, & x \leq -2 \\ x + 1, & x > -2 \end{cases}$



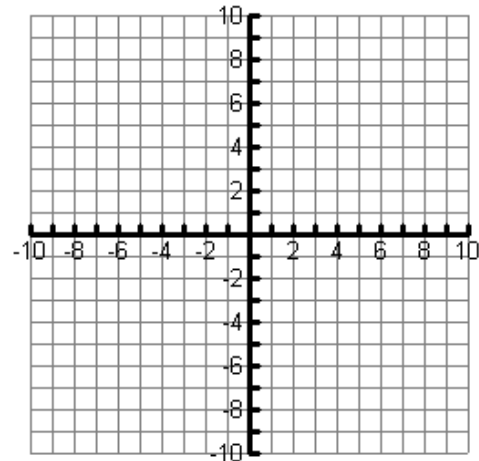
8. $f(x) = \begin{cases} -x, & x \leq 0 \\ 2x - 2, & x > 0 \end{cases}$



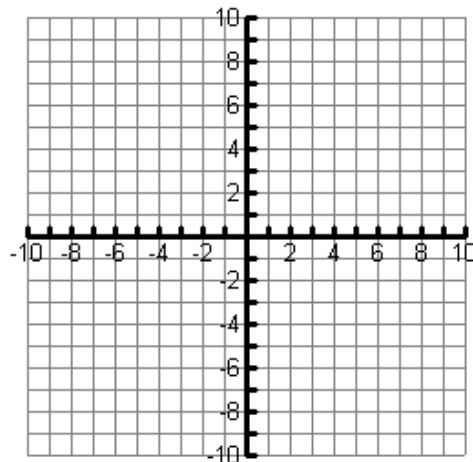
9. $f(x) = \begin{cases} -x - 4, & x < -2 \\ -\frac{1}{2}x, & -2 \leq x \leq 2 \\ -1, & x > 2 \end{cases}$



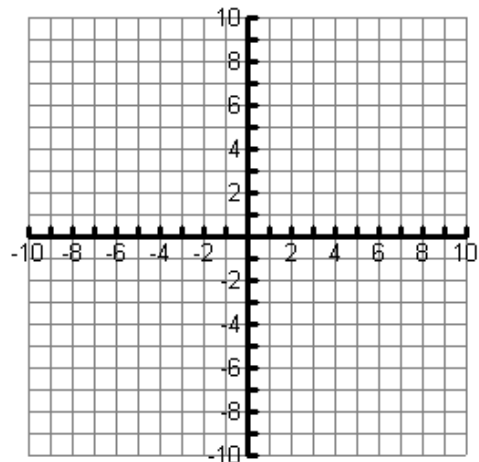
10. $f(x) = \begin{cases} 3, & x < -1 \\ x + 1, & 1 \leq x \leq 4 \end{cases}$



11. $f(x) = \begin{cases} \frac{1}{2}x - 1, & x \neq 4 \\ 3, & x = 4 \end{cases}$



12. $f(x) = \begin{cases} x + 4, & -6 \leq x < 2 \\ -6, & x = 2 \\ -x + 2, & x > 2 \end{cases}$



For problems 1-12, evaluate the function for the given values of x .

$$f(x) = \begin{cases} 3, & \text{if } x \leq 0 \\ 2, & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x+5, & x \leq 3 \\ 2x-1, & x > 3 \end{cases}$$

$$h(x) = \begin{cases} \frac{1}{2}x - 4, & x \leq -2 \\ 3 - 2x, & x > -2 \end{cases}$$

- | | | | |
|------------|-------------|-------------|---------------------|
| 1. $f(2)$ | 2. $f(-4)$ | 3. $f(0)$ | 4. $f(\frac{1}{2})$ |
| 5. $g(7)$ | 6. $g(0)$ | 7. $g(-1)$ | 8. $g(3)$ |
| 9. $h(-4)$ | 10. $h(-2)$ | 11. $h(-1)$ | 12. $h(6)$ |

Graph the function.

13. $f(x) = \begin{cases} 2x-3, & \text{when } x \leq 1 \\ 3x+1, & \text{when } x > 1 \end{cases}$

14. $f(x) = \begin{cases} x-1, & \text{when } x < 2 \\ 2x+1, & \text{when } x \geq 2 \end{cases}$

Match the piecewise function with its graph.

15. $f(x) = \begin{cases} x-4, & x \leq 1 \\ 3x, & x > 1 \end{cases}$

16. $f(x) = \begin{cases} x+4, & x \leq 0 \\ 2x+4, & x > 0 \end{cases}$

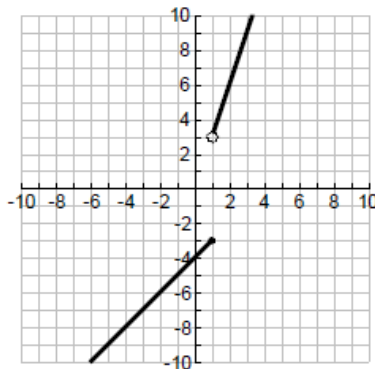
17. $f(x) = \begin{cases} 3x-2, & x \leq 1 \\ x+2, & x > 1 \end{cases}$

18. $f(x) = \begin{cases} 2x=3, & x \geq 0 \\ x+4, & x < 0 \end{cases}$

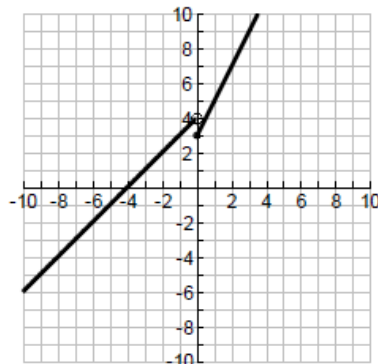
19. $f(x) = \begin{cases} 3x-1, & x \geq -1 \\ -5, & x < -1 \end{cases}$

20. $f(x) = \begin{cases} -3x-1, & x \leq 1 \\ -5, & x > 1 \end{cases}$

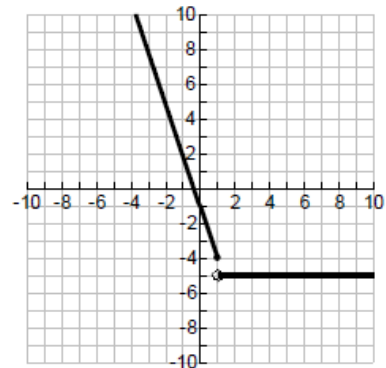
A



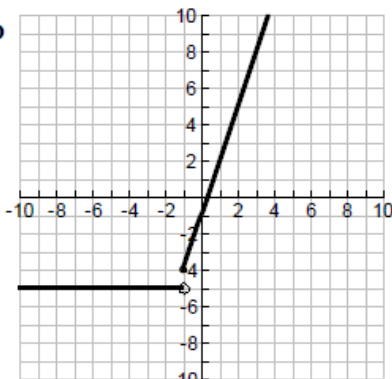
B



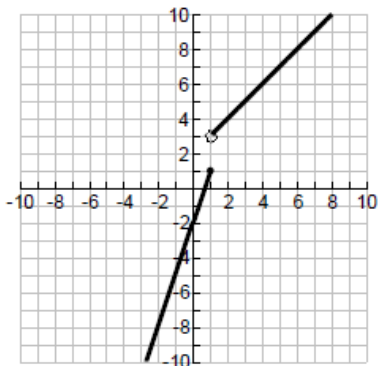
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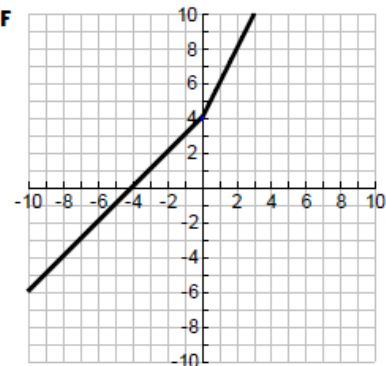
D



E

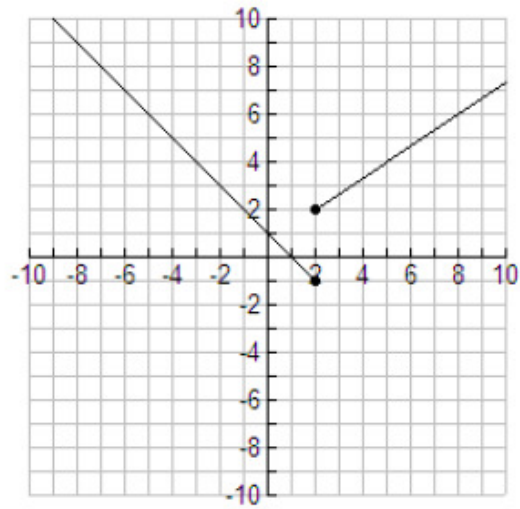


F

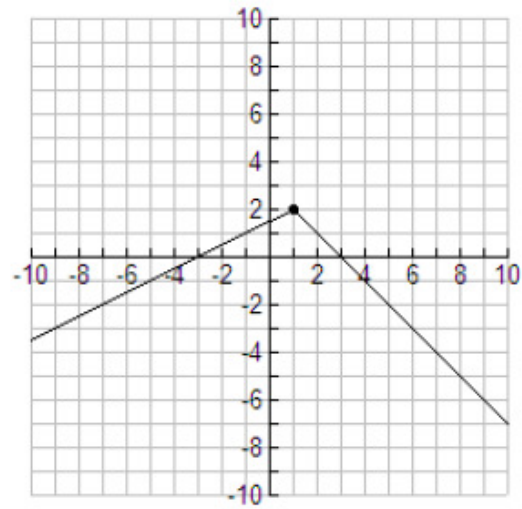


Write the function for the given graphs.

21.



22.



1. You are a buyer for a grocery store and you are asked to purchase potatoes for the grocery store. The distributor of potatoes tells you that if you buy up to 50 bushels of potatoes, you will pay \$40 per bushel; and for each bushel you purchase above 50 bushels, you will pay \$30 per bushel.
 - a. How much will your grocery store pay in total if you decide to purchase 40 bushels? 60 bushels? 100 bushels?

 - b. Write a function which has as its input values (x-values) the number of bushels of potatoes purchased and outputs the total amount of money that your grocery store will pay for the potatoes.

2. A certain country taxes the first \$20,000 of an individual's income at a rate of 15%, and all income over \$20,000 is taxed at 20%.
 - a. Al makes \$16,000. Betty makes \$36,000. How much is each taxed?

 - b. Write a piecewise function T that specifies the total tax on an income of x dollars.

 - c. Catina is taxed \$5000. What is her income?

3. A museum charges \$40 for a group of 10 or fewer people. A group of more than 10 people must, in addition to the \$40, pay \$2 per person for the number of people above 10. For example, a group of 12 pays \$44 and a group of 15 pays \$50. The maximum group size is 50.

a. Find a function, $C = f(x)$, that represents the cost as a function of the number of people going to the museum.

b. How much would the museum charge for a group of 8? Group with 35 people?