

## 2016-17 2.6 – 2.8 TEST REVIEW

### 2.7 Transformations

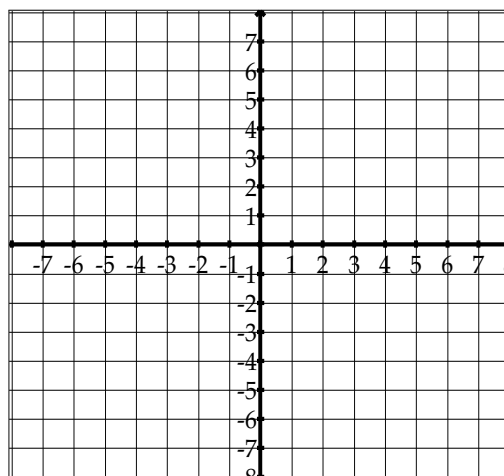
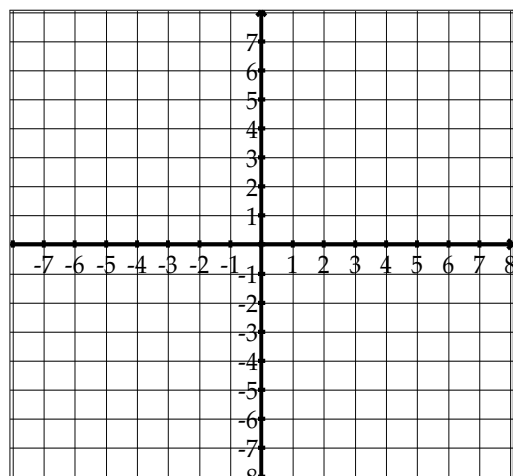
Identify the parent function. Then use the indicated transformations to create a transformation table and graph the function.

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



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





#### Identifying transformations.

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

parent function:

transformation:

4.  $f(x) = -\frac{1}{3}|x+1| - 5$

parent function:

transformation:

5. Let  $g(x)$  be a horizontal translation 3 units left, followed by a vertical translations 2 units down of the parent function  $f(x) = x^2$ . Write the rule for  $g(x)$ .

6. Let  $g(x)$  be a horizontal translation 2 units right followed by a vertical reflection and a vertical stretch by a factor of 4 of the function  $f(x) = |x|$ . Write the rule for  $g(x)$ .

7. Let  $g(x)$  be a translation 4 units left and 3 units down of  $f(x) = x^2 - 4$ . Write the rule for  $g(x)$ .

8. Let  $g(x)$  be a horizontal translation left 3 units, followed by a vertical compression of  $\frac{1}{2}$  and then a reflection over the x-axis of  $f(x) = |x|$ . Write the rule for  $g(x)$ .

## 2.6 Piecewise functions

Evaluate the piecewise functions for each given value.

9. 
$$f(x) = \begin{cases} -3, & \text{if } x \leq -1 \\ 2, & \text{if } -1 < x < 8 \\ 7, & \text{if } x \geq 8 \end{cases}$$

a.  $f(8) =$

b.  $f(-1) =$

10. 
$$f(x) = \begin{cases} -x + 12, & \text{if } x < -8 \\ x^2 + 2, & \text{if } -8 \leq x \leq 7 \\ 3x - 7, & \text{if } x > 7 \end{cases}$$

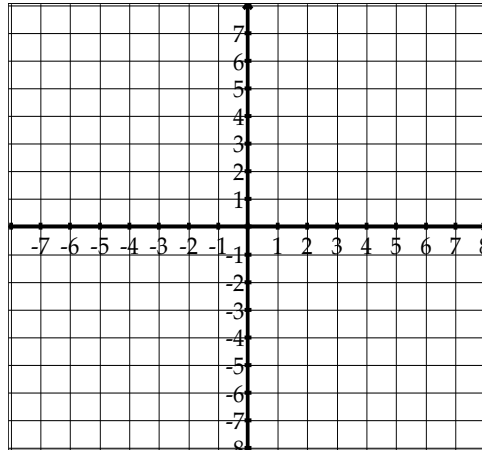
a.  $f(-12) =$

b.  $f(-3) =$

Graph the following piecewise functions.

11.  $f(x) = -\frac{2}{3}x + 3$ , if  $x < 0$

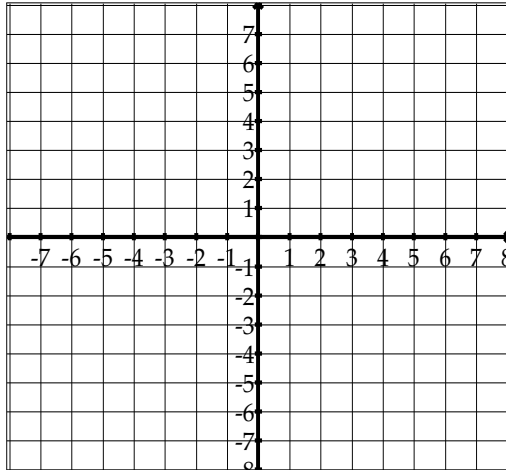
$\frac{2}{3}x - 1$ , if  $x > 0$



12.  $f(x) = -x$  if  $x < -3$

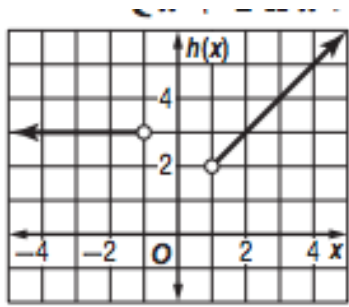
$3$  if  $-3 \leq x \leq 2$

$2x - 3$ , if  $x > 2$

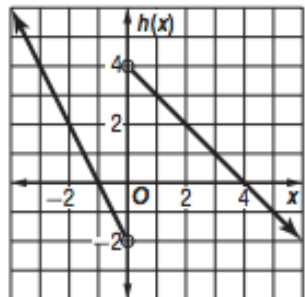


Write a piecewise function for each graph.

13.

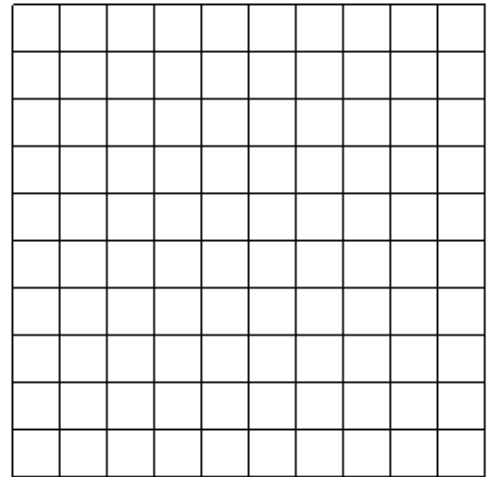


14.



15. A house painter charges \$12 per hour for the first 40 hours he works, time and a half for the 10 hours after that, and double time for all hours after that. Write and graph a piecewise function that describes the painter's income in terms of the number of hours he has worked. You may assume that his work week never surpasses 70 hours.

$$h(x) = \left\{ \begin{array}{l} \phantom{h(x)} \\ \phantom{h(x)} \end{array} \right.$$



**2.8 Graphing linear & absolute value inequalities.**

15.  $5x - 3y \leq 15$

16.  $y - 2 < -|x - 3|$

