AGS 2
Module 4.2 Homework

Name Key
Period

1. Explain why the equation $|m| = -3$ has no solution.

There is no value that we can plug in for m that will result in a negative absolute value. Absolute values are always positive.

Solve. Show your work.

2. $-9|m| = -63$

$\frac{-9}{-9} \quad \frac{-63}{-9}$

$|m| = 7$

$m = 7$ $m = -7$

3. $|3d| = 15$

$\frac{3d}{3} = \frac{15}{3} \quad \frac{3d}{3} = \frac{-15}{3}$

$d = +5$ $d = -5$

4. $|3x - 5| = 11$

$3x - 5 = 11 \quad 3x - 5 = -11$

$+5 \ +5 \quad +5 \ +5$

$\frac{3x}{3} = \frac{16}{3} \quad \frac{3x}{3} = \frac{-6}{3}$

$x = 16/3$ $x = -2$

5. $-|m + 3| = -13$

$\frac{-}{-1} \quad \frac{-}{-1}$

$|m+3| = 13$

$m + 3 = 13 \quad m + 3 = -13$

$-3 \ -3 \quad -3 \ -3$

$m = 10$ $m = -16$

6. $|-4m| = 64$

$\frac{-4m}{-4} = \frac{64}{-4} \quad \frac{-4m}{-4} = \frac{-64}{-4}$

$m = -16$ $m = 16$

7. $2|x + 1| - 7 = -3$

$+7 \ +7$

$\frac{2|x+1|}{2} = \frac{4}{2}$

$|x+1| = 2$

$x + 1 = 2 \quad x + 1 = -2$

$-1 \ -1 \quad -1 \ -1$

$x = 1$ $x = -3$

8. $5|c + 3| - 1 = 9$

$+1 \ +1$

$\frac{5|c+3|}{5} = \frac{10}{5}$

$|c+3| = 2$

$c + 3 = 2 \quad c + 3 = -2$

$-3 \ -3 \quad -3 \ -3$

$c = -1$ $c = -5$

9. $-2|2p - 3| - 1 = -11$

$+1 \ +1$

$\frac{-2|2p-3|}{-2} = \frac{-10}{-2}$

$|2p-3| = 5$

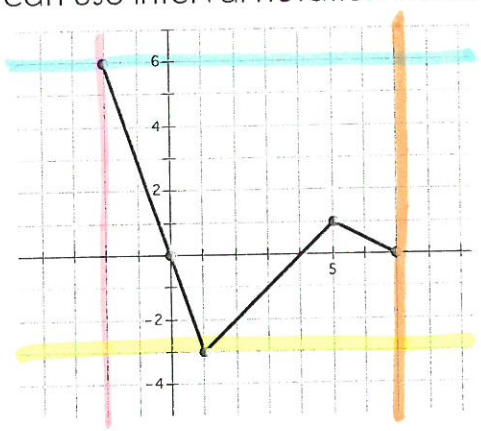
$2p - 3 = 5 \quad 2p - 3 = -5$

$+3 \ +3 \quad +3 \ +3$

$\frac{2p}{2} = \frac{8}{2}$ $p = 4$ $\frac{2p}{2} = \frac{-2}{2}$ $p = -1$

State the domain and range of the piecewise functions in the graph. Use interval notation. We can use interval notation because the functions are continuous.

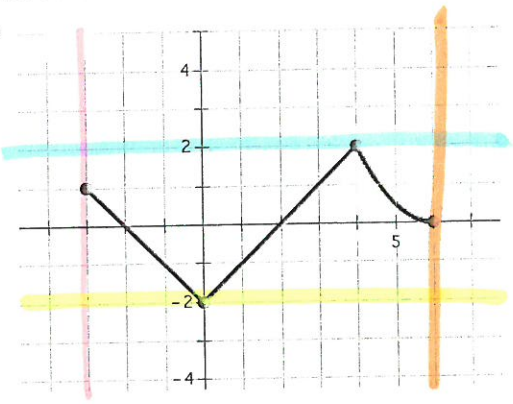
10.



a. Domain: $[-2, 7]$

b. Range: $[-3, 6]$

11.

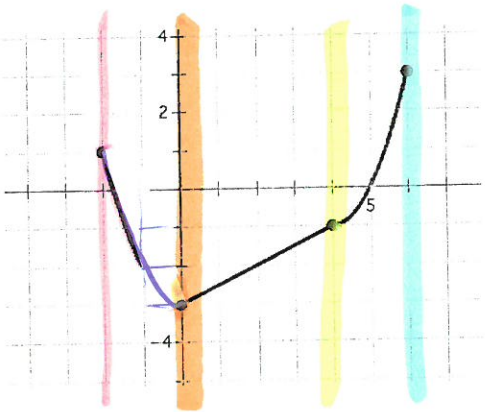


a. Domain: $[-3, 10]$

b. Range: $[-2, 2]$

For each of the graphs below, write the interval that defines each piece of the graph. Then, write the domain of the entire piecewise function.

12.



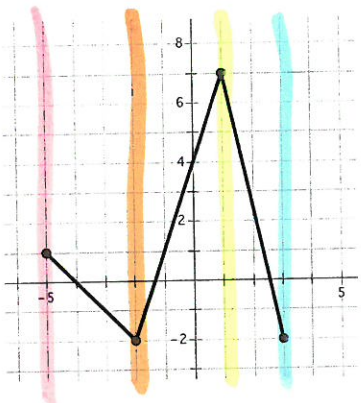
a. Interval 1 $[-2, 0]$

b. Interval 2 $[0, 4]$

c. Interval 3 $[4, 10]$

d. Domain: $[-2, 10]$

13.



a. Interval 1 $[-5, -2]$

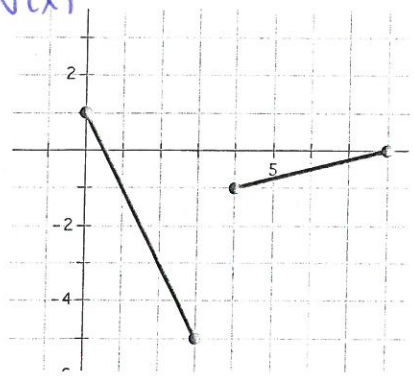
b. Interval 2 $[-2, 1]$

c. Interval 3 $[1, 3]$

d. Domain: $[-5, 3]$

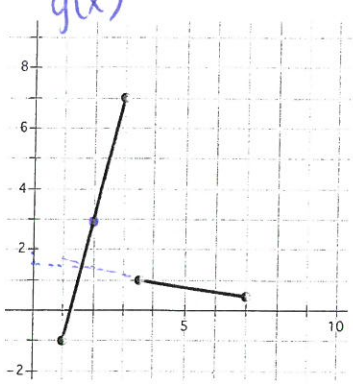
Write the piecewise equations for the given graphs.

14. f(x)



$$f(x) = \begin{cases} -2x+1, & 0 \le x \le 3 \\ (1/4)x - 2, & 4 \le x \le 8 \end{cases}$$

15. g(x)



$$g(x) = \begin{cases} 4x-5, & 1 \le x \le 3 \\ (-\frac{1}{7})x + 1.5, & 3.5 \le x \le 7 \end{cases}$$

16. Beginning with the parent function $f(x) = x^2$, write the equation of the new function g(x) that is a transformation of f(x) as described. Then, graph it.

Shift f(x) left by 3 units,
Stretch vertically by 2,
Reflect f(x) vertically,
And shift down 5 units.

g(x) = $-2(x+3)^2 - 5$