

3.2 Notes

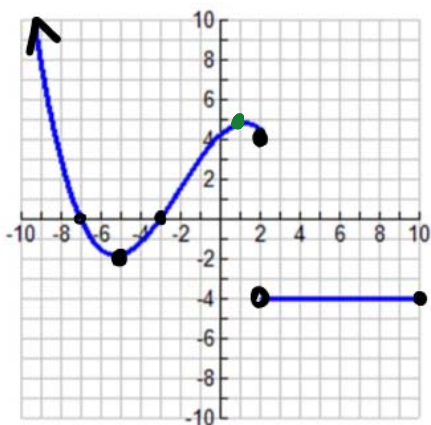
Wednesday, August 17, 2016 9:17 AM

Algebra 2 H

Name:

3.2 Notes on Piecewise Functions and Graph Analysis

1. Identify the following characteristics of the graph below.



- a) Domain: $(-\infty, 10]$
- b) Range: $[-4, -4] \cup [-2, \infty)$
- c) x intercepts: $(-7, 0)$ & $(-3, 0)$
- d) y intercept: $(0, 4)$
- e) Interval where function is increasing $[-5, 1]$
- f) Interval where function is decreasing $(-\infty, -5] \cup [1, 2]$
- g) Interval where function is constant $(2, 10]$

look at y values to determine increasing, etc. use intervals based on x values

Determine the domain of the equations below.

2. $f(x) = 4x^2 - 5x$
 $(-\infty, \infty)$

3. $g(x) = \frac{3+x}{2x-5}$
 $(-\infty, 2.5) \cup (2.5, \infty)$

4. $h(x) = \sqrt{7-3x}$

$$\begin{aligned} 7-3x &\geq 0 \\ -3x &\geq -7 \\ x &\leq \frac{7}{3} \end{aligned}$$

$(-\infty, 7/3]$

Evaluate the following based on the piecewise function $z(x)$ below.

$$z(x) = \begin{cases} 3, & x < 0 \\ 2x, & 0 \leq x < 4 \\ 5x-4, & 4 < x < 8 \end{cases}$$

a. $z(-4)$

3

b. $z(2)$

4

c. $z(7)$

31

d. $z(4)$

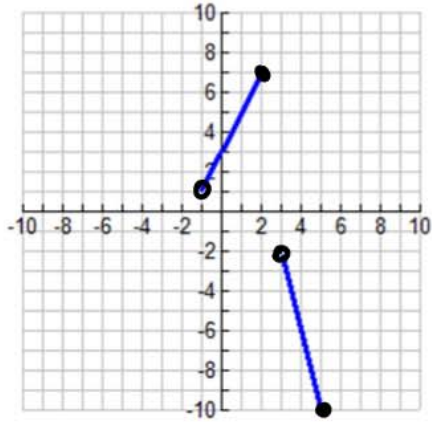
undefined

e. $z(10)$

undefined

For the graphs below, identify the domain and range and write in interval notation.

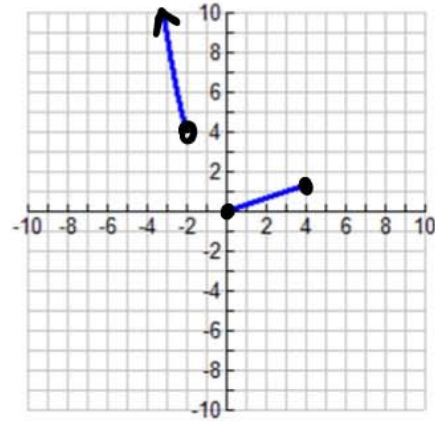
6.



Domain: $[-1, 2) \cup (3, 5]$

Range: $[-10, -2) \cup (1, 7]$

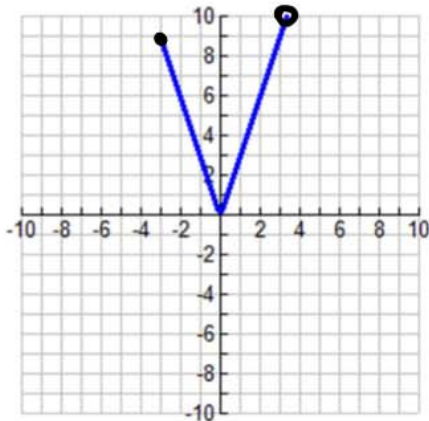
7.



Domain: $(-\infty, -2) \cup [0, 4]$

Range: $[0, 1] \cup (4, \infty)$

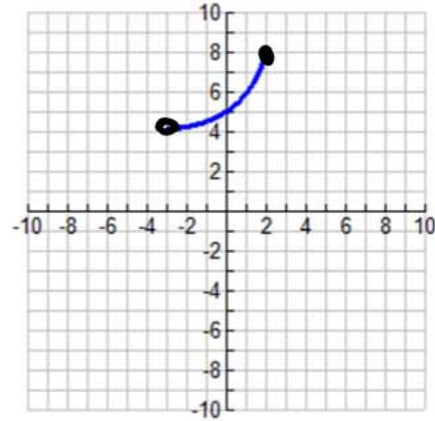
8.



Domain: $[-3, 3)$

Range: $[0, 10)$

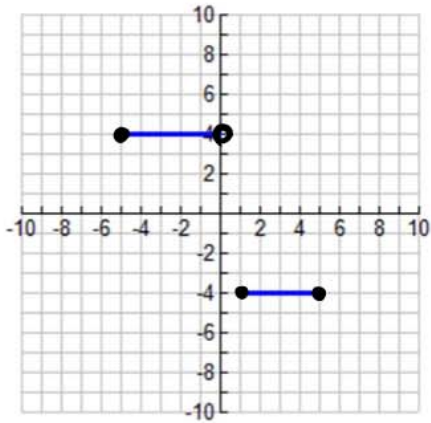
9.



Domain: $[-3, 2]$

Range: $[4, 8]$

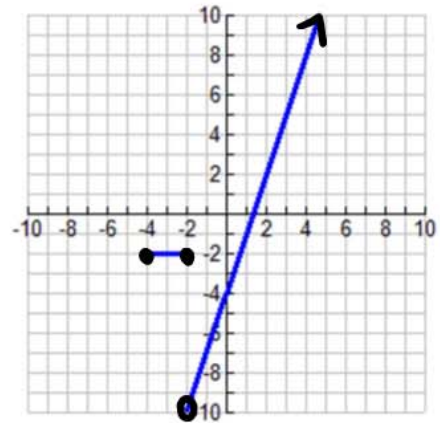
10.



Domain: $[-5, 1) \cup [1, 5]$

Range: $[-4, -4] \cup [4, 4]$

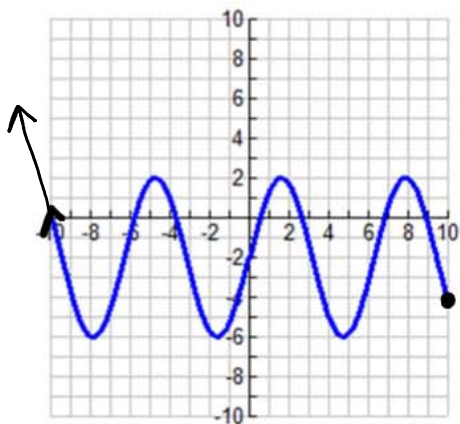
11.



Domain: $[-4, \infty)$

Range: $(-10, \infty)$

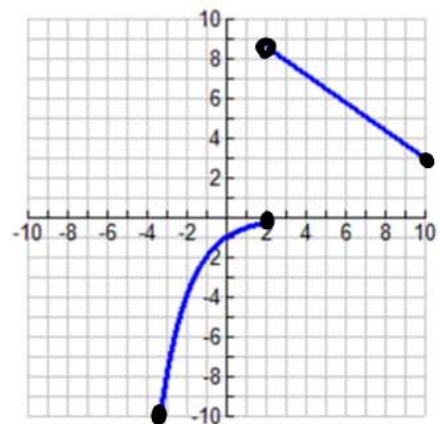
12.



Domain: $(-\infty, 10]$

Range: $[-6, 2]$

13.

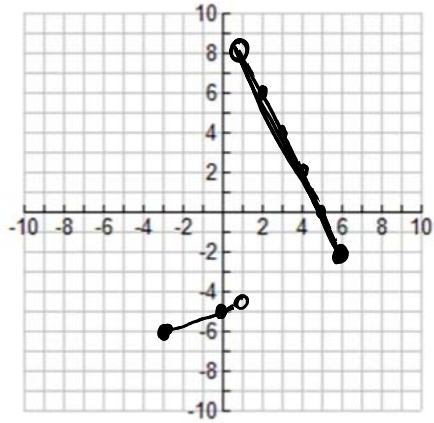


Domain: $[-3.5, 10]$

Range: $[-10, 0] \cup [3, 8.5]$

Graph the following piecewise functions:

$$14. a(x) = \begin{cases} 10 - 2x, & 1 < x \leq 6 \\ \frac{1}{3}x - 5, & -3 \leq x < 1 \end{cases}$$



$$15. z(x) = \begin{cases} 5, & -2 < x \leq 2 \\ x^2, & 2 < x \end{cases}$$

