Practice for Function Quiz #1 9.12 **Name** Answers

Check answers on the website and be ready for the quiz next class!

Simplify the following expressions.

1) $2+\frac{30}{3}-(1-3)$

$2 + 10 - (-2)$

14

2) $6+(5-7)\div 2-2$

$6 + -2 \div 2 - 2$

$6 - 1 - 2 =$ 3

3) $2\times 5+12-3\div 3$

$10 + 12 - 1$

21

4) $-2^3+(-2)^3+2$

$-8 + -8 + 2$

-14

5) $(12\div 2\times 3)-(-5)$

$18 + 5$

23

6) $4+(-1)^4+\frac{7+5}{-2}$

$4 + 1 + \frac{12}{-2}$

$5 - 6$

-1

7) Given the relation $y=-x^2+6x$, find the y values given each x value below. Then plot each point you find and draw the curve or line that the relation creates.

$x=-1$ $(-1,-7)$

$-(-1)^2+6(-1) = -1+-6$

$= -7$

$x=0$ $(0, 0)$

$-(0)^2+6(0)=0$

$x=3$ $(3, 9)$

$-(3)^2+6(3) = -9+18 = 9$

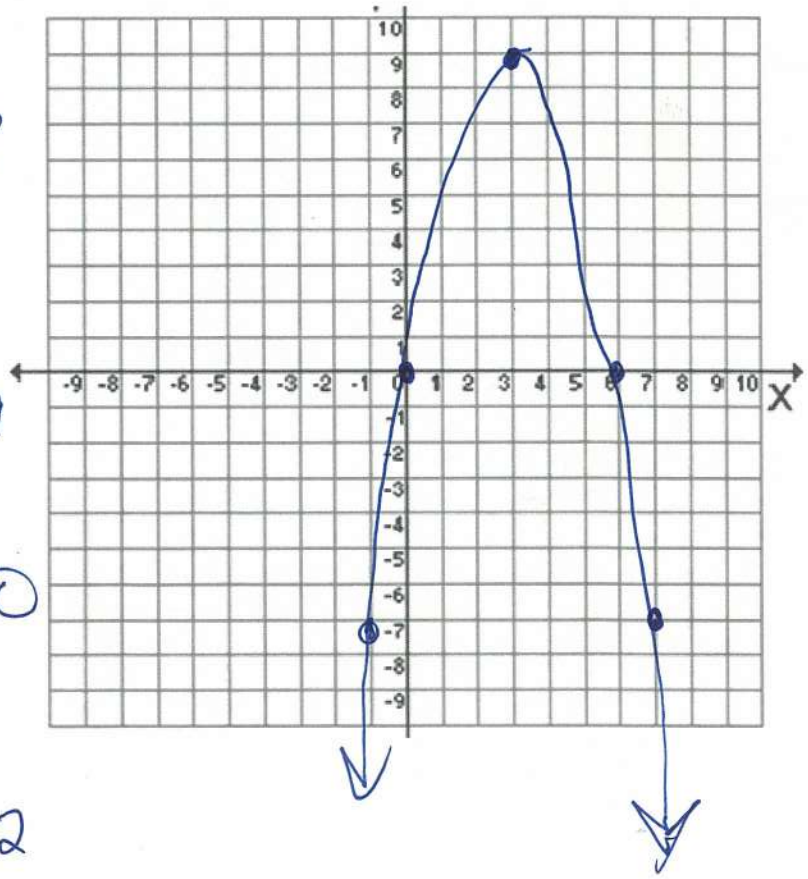
$x=6$ $(6, 0)$

$-(6)^2+6(6) = -36+36 = 0$

$x=7$ $(7,-7)$

$-(7)^2+6(7) = -49+42$

$= -7$

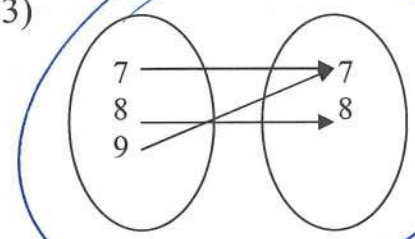


8) Which of the relations below are functions? Circle all that are functions and then explain: What makes a relation a function?

1) $A = \{(3,3),(3,4),(4,5)\}$

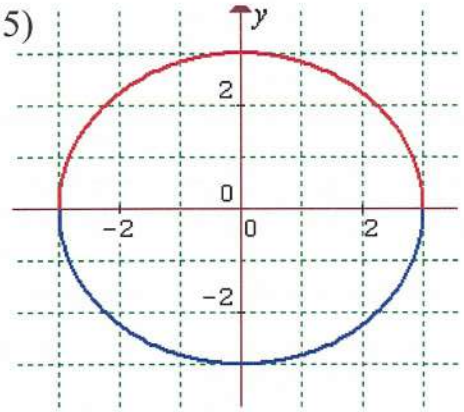
2) $B = \{(5,3),(6,3),(8,4)\}$

3)

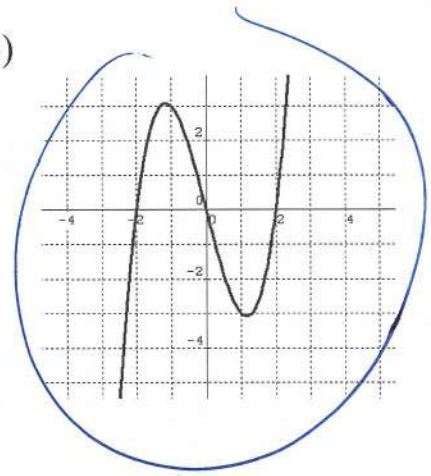


4) $y = 2x - 6$

5)



6)



Circled are functions since x-values do

9) State the **domain** and **range** of each relation above.

1) domain: $\{3,4\}$ range: $\{3,4,5\}$

2) domain: $\{5,6,8\}$ range: $\{3,4\}$

3) domain: $\{7,8,9\}$ range: $\{7,8\}$

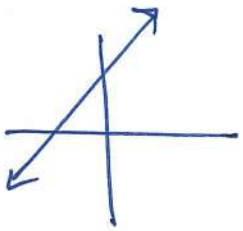
4) domain: $\mathbb{R}$ range: $\mathbb{R}$

5) domain: $-3 \leq x \leq 3$ range: $-3 \leq y \leq 3$

6) domain: $\mathbb{R}$ range: $\mathbb{R}$

10) Given the function $g(x) = 2x + 6$

a) What is the domain of g(x)? $\mathbb{R}$ It's a line!



b) Evaluate $g(3)$. $= 2(3) + 6$
$= 6 + 6 = 12$

c) Evaluate $g(\frac{1}{2})$ $= 2(\frac{1}{2}) + 6$
$= 1 + 6 = 7$

d) Evaluate $g(a+1)$ $= 2(a+1) + 6$
$= 2a + 2 + 6 = 2a + 8$

11) Given the function $f(x) = x^2 - 2x - 3$

a) Evalute $f(4)$ $= (4)^2 - 2(4) - 3$
$= 16 - 8 - 3 = 5$

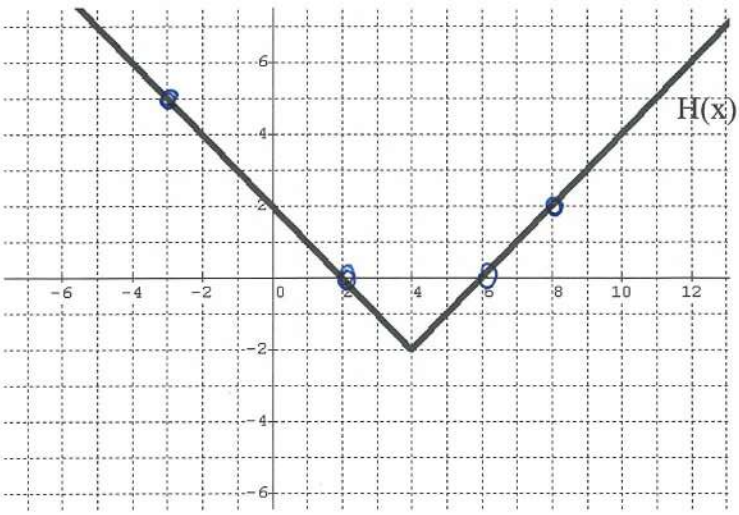
b) Evaluate $f(-1)$. $= (-1)^2 - 2(-1) - 3$
$= 1 + 2 - 3 = 0$

12) Given the function *H(x)* below, evaluate the following:

a) $H(2) = 0$ b) $H(8) = 2$ c) $(H \circ H)(6) = 2$ d) $H(H(-3)) = -1$

$H(6) = 0$
$H(0) = 2$

$H(-3) = 5$
$H(5) = -1$



13) Ms. Stewart is walking her greyhounds home. Her distance (in meters) away from home, d(m), is given by the equation $d(m) = 2500 - 50m$ where m stands for the number of minutes that Ms. Stewart walks.

a) Evaluate d(0). What does this mean in words?

$d(0) = 2500 - 50(0)$ At 0 minutes,
$= 2500$ Ms. Stewart is 2500 meters from home

b) Interpret in words d(5) = 2250. (Write your interpretation using a complete sentence.)

At 5 minutes, Ms. Stewart is 2,250 meters from home.

14) Use the functions below to evaluate the compositions given. Fully simplify all answers.

$f(x) = x^2 + 5$ $\quad g(n) = \frac{12}{n}$ $\quad h(r) = \sqrt{4 + r}$ $\quad j(x) = \frac{6}{3x - 1}$

a) $(f \circ h)(5)$

$h(5) = \sqrt{4+5} = \sqrt{9} = 3$

$f(3) = 3^2 + 5 = 14$

b) $(j \circ g)(2)$

$g(2) = \frac{12}{2} = 6$

$j(6) = \frac{6}{3(6)-1} = \frac{6}{17}$

c) $g(j(0))$

$j(0) = \frac{6}{3(0)-1} = -6$

$g(-6) = \frac{12}{-6} = -2$

d) $g(f(3))$

$f(3) = (3)^2 + 5 = 9 + 5 = 14$

$g(14) = \frac{12}{14} = \frac{6}{7}$

e) $(h \circ g)(2)$

$g(2) = \frac{12}{2} = 6$

$h(6) = \sqrt{4+6} = \sqrt{10}$

f) $f(g(j(1)))$

$j(1) = \frac{6}{3(1)-1} = 3$

$g(3) = \frac{12}{3} = 4$

$f(4) = (4)^2 + 5 = 21$