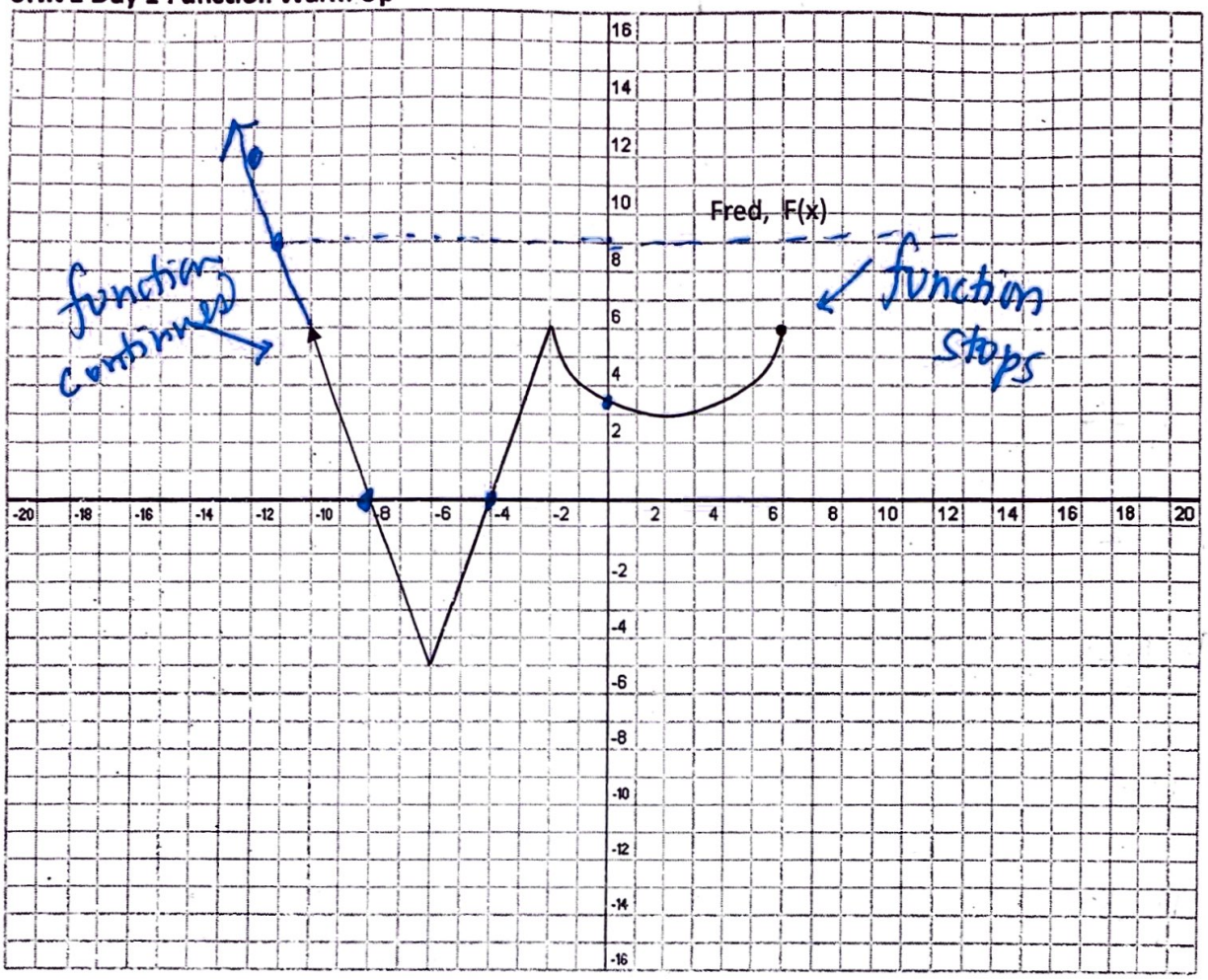
E.4

Unit 1 Day 1 Function Warm Up



1. F(5) = 4 (x, y)
   F(-7) = -3
   F(10) = no solution | undefined
   F(-2) = 6
   F(-3) = 3

2. F(-11) = 9 (x, y)
   F(-6) = -6 (y, x)
   F(-5) = -3 or F(-7) = -3 (x, y)

Is F(x) a function? yes - it passes the vertical line test

3. Is this function a one to one function? Why?

no - it does not pass the horizontal line test

4. What is the domain of the function? (all x-values) L, R $(-\infty, 6]$ — closed / =

   What is the range of the function? (all y-values) Bottom, Top $[-6, \infty)$

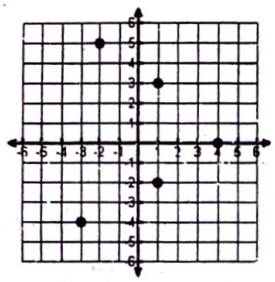
5. What are the roots (zeros) of the function? (x-intercepts) (-4, 0), (-8, 0)

6. What is the y intercept of the function? (0, 3.5)

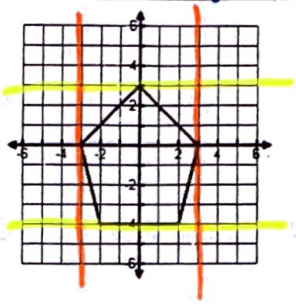
Unit 1 Day 1 Domain and Range Notes p. 2 1, 8, 9 omit

State the domain and range for each graph and then tell if the graph is a function (write yes or no).

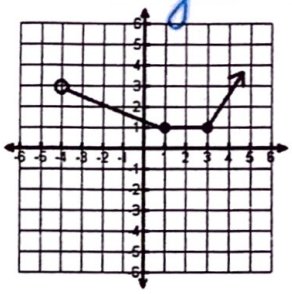
1) Domain_____
Range_____
Function?_____



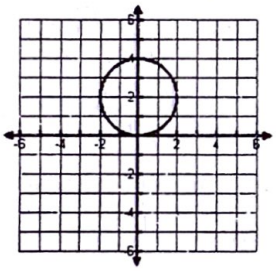
2) Domain [-3,3] L, R
Range [-4,3]
Function? no



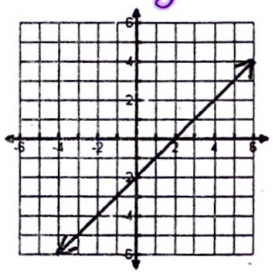
3) Domain (-4 ∞) 0
Range [1, ∞)
Function? yes



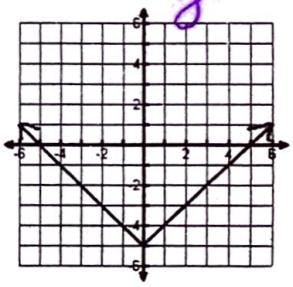
4) Domain [-2, 2]
Range [0, 4]
Function? no



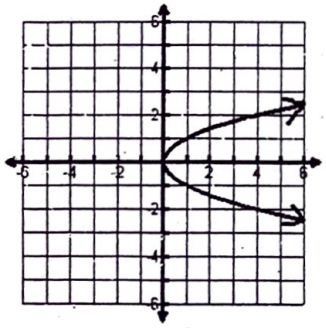
5) Domain (-∞, ∞)
Range (-∞, ∞)
Function? yes



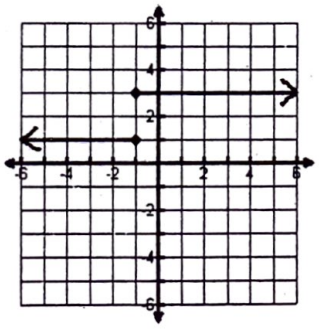
6) Domain (-∞, ∞)
Range [-5, ∞)
Function? yes



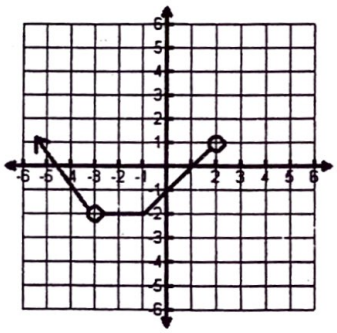
7) Domain [0, ∞)
Range (-∞, ∞)
Function? no



8) Domain_____
Range_____
Function?_____



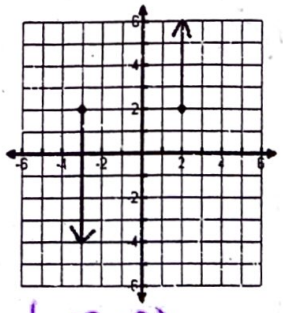
9) Domain_____
Range_____
Function?_____



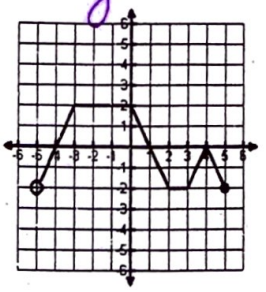
Domain and Range Practice

State the domain and range for each graph and then tell if the graph is a function (write yes or no).

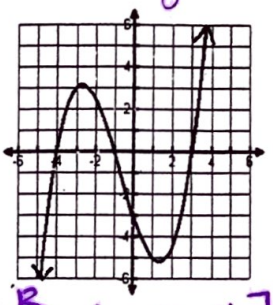
1) Domain_____
Range_____
Function?_____



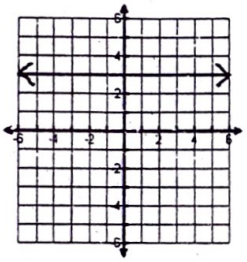
2) Domain $(-5, 5]$
Range $[-2, 2]$
Function? yes



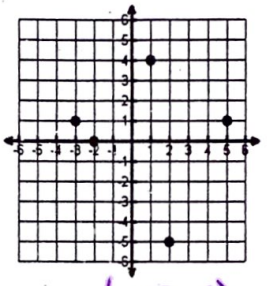
3) Domain $(-\infty, \infty)$
Range $(-\infty, \infty)$
Function? yes



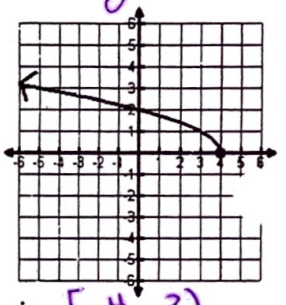
4) Domain $(-\infty, \infty)$
Range $y = 3$
Function? yes



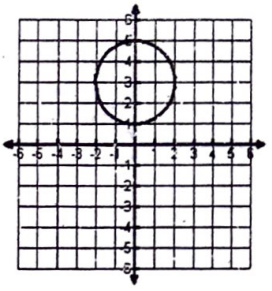
5) Domain_____
Range_____
Function?_____



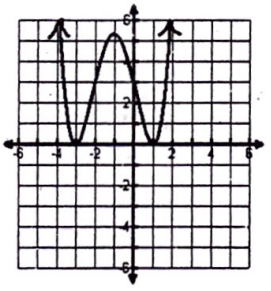
6) Domain $(-\infty, 4]$
Range $[0, \infty)$
Function? yes



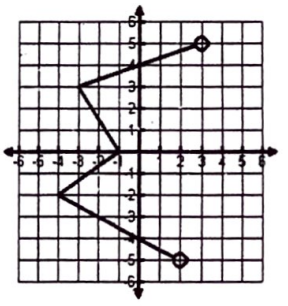
7) Domain $[-2, 2]$
Range $[1, 5]$
Function? no



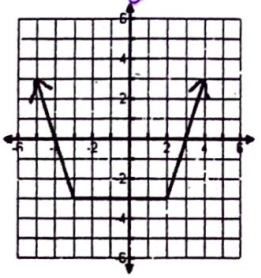
8) Domain $(-\infty, \infty)$
Range $[0, \infty)$
Function?_____



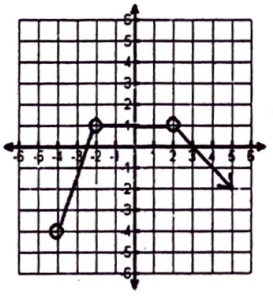
9) Domain $[-4, 3)$
Range $(-5, 5)$
Function? no



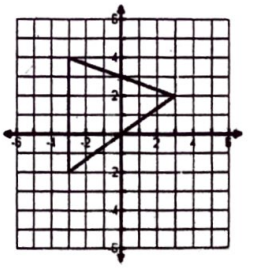
10) Domain $(-\infty, \infty)$
Range $[-3, \infty)$
Function? yes



11) Domain_____
Range_____
Function?_____



12) Domain $[-3, 3]$
Range $[-2, 4]$
Function? no



Math 3 Unit 1 Name_____

Day 1 Practice SUBSTITUTION! P. 4

Evaluate each function. Show all work when evaluating with a variable.

1) $g(t) = 3t^2 - 3$; Find $g(-3)$

$g(-3) = 3(-3)^2 - 3$

$= 3(9) - 3 = 27 - 3 = \boxed{24}$

2) $w(n) = |-3n| - 2$; Find $w(-3)$ $= 7$

3) $k(t) = t^3 + 1$; Find $k(5)$

$k(5) = 5^3 + 1$

$= 125 + 1$

$= \boxed{126}$

4) $h(n) = |3n - 2| + 1$; Find $h(-7)$ $= 24$

$23 + 1$

5) $w(a) = -3|-3a|$; Find $w(2)$

$w(2) = -3|-3 \cdot 2|$

$= -3|-6| = -3(6) = \boxed{-18}$

6) $g(n) = 3n^2 + 5$; Find $g(4)$ $= 53$

7) $g(t) = -|-2t - 2| + 1$; Find $g(-5)$ $= -7$

$g(-5) = -|-2(-5) - 2| + 1$

$10 - 2$

$= -|8| + 1 = -8 + 1 = -7$

8) $g(n) = n^2 + 5n$; Find $g(-4)$ $= -4$

$(-4)^2 + 5(-4)$

$16 - 20$

9) $w(x) = 4x - 2$; Find $w(3x)$

$w(3x) = 4(3x) - 2$

$= \boxed{12x - 2}$

10) $h(n) = 3n^3 - n$; Find $h(-n)$

$3(-n)^3 - (-n)$

$3(-n^3) + n = -3n^3 + n$

11) $h(n) = 3n - 5$; Find $h(4n)$

$h(4n) = 3(4n) - 5$

$= \boxed{12n - 5}$

12) $h(t) = -t^2 + 1$; Find $h(2t)$

$-(2t)^2 + 1$

$-(2t)(2t) + 1 = \boxed{-4t^2 + 1}$

13) $k(n) = n^2 + 3$; Find $k(n-4)$

$K(n-4) = (n-4)^2 + 3$ ← FOIL!

$= (n-4)(n-4) + 3$

$= n^2 - 8n + 16 + 3 = \boxed{n^2 - 8n + 19}$

14) $f(x) = -x + 4$; Find $f(x-4)$ $= -x + 8$

15) $k(t) = 4t + 2$; Find $k(t+4)$

$K(t+4) = 4(t+4) + 2$

$= 4t + 16 + 2$

$= \boxed{4t + 18}$

16) $g(t) = t^3 + 4$; Find $g(t^2)$ $= t^6 + 4$

17) $k(n) = n^2 - 2n$; Find $k(n+1)$

$K(n+1) = (n+1)^2 - 2(n+1)$

$= (n+1)(n+1) - 2n - 2$

$= n^2 + n + n + 1 - 2n - 2 = \boxed{n^2 - 1}$

18) $g(a) = a^2 - 5$; Find $g(-a)$ $= a^2 - 5$

19) $f(t) = t^2 - 5t$; Find $f(2y)$ $= 4y^2 - 10y$

20) $g(n) = n^2 + 3 + 2n$; Find $g(n+1)$ $= n^2 + 4n + 6$

21) $k(t) = t^2 + 5t$; Find $k(t-3)$ $= t^2 - t - 6$

22) $g(n) = n^3 - n^2$; Find $g(3n)$ $= 27n^3 - 9n^2$

23) $h(x) = x^2 + 2$; Find $h(x+4)$ $= x^2 + 8x + 18$

24) $k(a) = a^3 + 5a^2$; Find $k(a^2)$ $= a^6 + 5a^4$

25) $g(a) = a^2 - 3$; Find $g(-2a)$ $= 4a^2 - 3$

26) $h(n) = n^2 - 5$; Find $h(n+1)$ $= n^2 + 2n - 4$