

Unit 3 Test Study Guide

Relations & Functions

Relations

1. $\{(-6, 4), (5, -1), (0, 3), (-2, 4)\}$

a. Domain = $\{-6, -2, 0, 5\}$

b. Range = $\{-1, 3, 4\}$

c. Function? Yes

2.

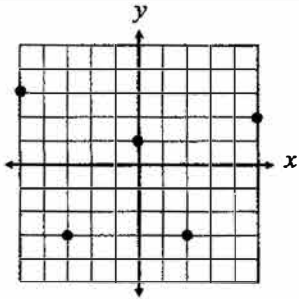
x	-4	-3	0	-3
y	8	1	-5	2

a. Domain = $\{-4, -3, 0\}$

b. Range = $\{-5, 1, 2, 8\}$

c. Function? NO

3.

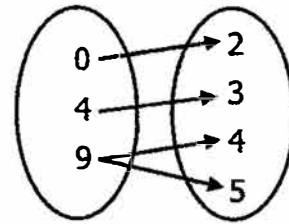


a. Domain = $\{-5, -3, 0, 2, 4\}$

b. Range = $\{-3, 1, 2, 3\}$

c. Function? Yes

4.

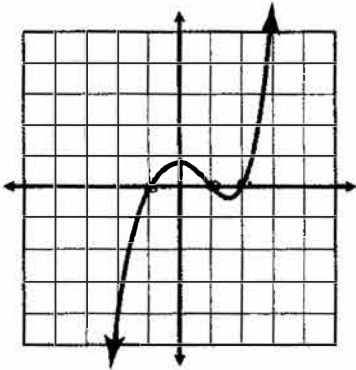


a. Domain = $\{0, 4, 9\}$

b. Range = $\{2, 3, 4, 5\}$

c. Function? NO

5.



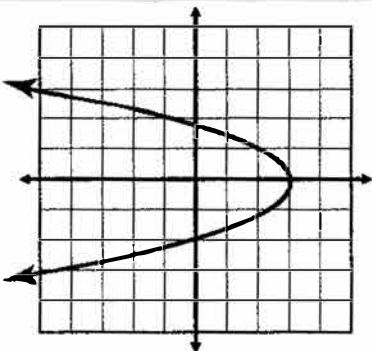
a. Domain = All real #'s

b. Range = All real #'s

c. Function? YES

d. Zero(s)? $x = \{-1, 1, 2\}$

6.



a. Domain = $x \leq 3$

b. Range = All real #'s

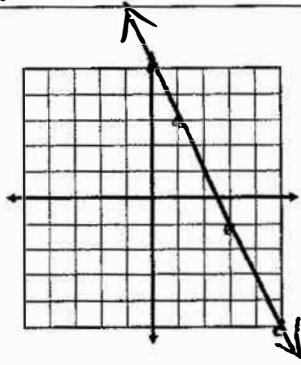
c. Function? NO

d. Zero(s)? $x = 3$

Graphing Functions

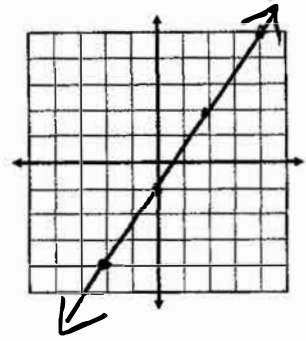
7. $y = -2x + 5$

x	y
0	5
1	3
3	-1
5	-5



8. $y = \frac{3}{2}x - 1$

x	y
-2	-4
0	-1
2	2
4	5



Function Notation

Use $f(x) = 5x - 20$, $g(x) = x^2 + 5x - 11$, and $h(x) = |2x + 7|$

9. $f(6)$

$$f(6) = 5(6) - 20 = \boxed{10}$$

10. $g(-3)$

$$g(-3) = (-3)^2 + 5(-3) - 11 = \boxed{-17}$$

11. $h(-8)$

$$h(-8) = |2(-8) + 7| = |-9| = \boxed{9}$$

12. $f(-1) + g(2)$

$$f(-1) = 5(-1) - 20 = -25$$

$$g(2) = 2^2 + 5(2) - 11 = 3$$

$$-25 + 3 = \boxed{-22}$$

Zeros

13. Find the zero(s) algebraically:

$$f(x) = 8x - 16$$

$$8x - 16 = 0$$

$$8x = 16$$

$$\boxed{x = 2}$$

14. Find the zero(s) using your graphing calculator:

$$f(x) = x^4 - 8x^3 + 5x^2 + 14x$$

$$\boxed{x = \{-1, 0, 2, 7\}}$$

Arithmetic Sequences

$$a_n = d(n - 1) + a_1$$

15. Given $\{5, 3, 1, -1, \dots\}$, Find a_{18}

$$a_n = -2(n - 1) + 5$$

$$= -2n + 2 + 5$$

$$= -2n + 7$$

$$a_{18} = -2(18) + 7 = \boxed{-29}$$

16. Given $\{-2, 5, 12, 19, \dots\}$, Find a_{34}

$$a_n = 7(n - 1) - 2$$

$$= 7n - 7 - 2$$

$$= 7n - 9$$

$$a_{34} = 7(34) - 9 = \boxed{229}$$