Name: Date:
Instructor: Section:

Practice Set 3.2

Use the choices below to fill in each blank.

independent	relation	junction	horizontal line
dependent	function	vertical line	oblique line

1. A special type of relation in which each element in one set corresponds to *exactly one* element in a second set is called a(n) _____.

2. In the equation $y = 3x + 5$, x is the _____ variable.

3. In the equation $y = 3x + 5$, y is the _____ variable.

4. If a _____ can be drawn through any part of the graph and intersect another part of the graph, then the graph is not a function.

Determine which of the following relations are functions.
Give the domain and range for each.

5. {(3, 5), (2, 5), (1, 5), (0, 5)}

6. {(1, 2), (1, 3), (1, 4), (1, 5}

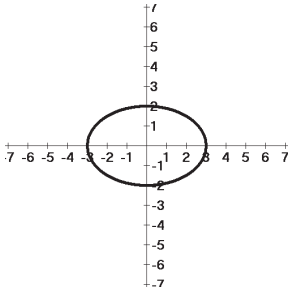
5. _____

_____

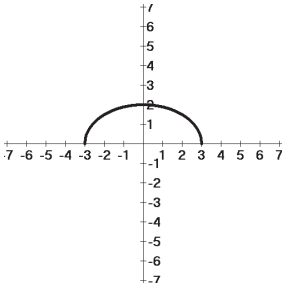
6. _____

_____

7.



8.



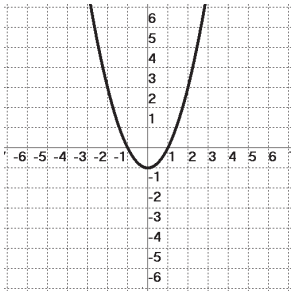
7. _____

_____

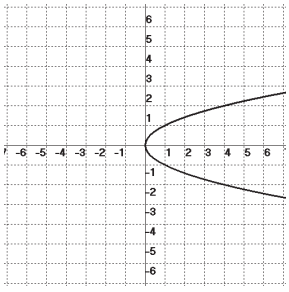
8. _____

_____

9.



10.



9. _____

_____

10. _____

_____

Evaluate each function at $f\left(\frac{1}{2}\right)$, $f(0)$, and $f(-2)$.

11. $f(x) = -x^2 + 3x - 4$

12. $f(t) = 5 - 4t + t^2 - t^3$

11. $f\left(\frac{1}{2}\right) =$ _____
$f(0) =$ _____
$f(-2) =$ _____

12. $f\left(\frac{1}{2}\right) =$ _____
$f(0) =$ _____
$f(-2) =$ _____

13. $f(x) = -2|2x - 1|$

14. $f(a) = \dfrac{\sqrt{2a+4}}{a}$

13. $f\left(\frac{1}{2}\right) =$ _____
$f(0) =$ _____
$f(-2) =$ _____

14. $f\left(\frac{1}{2}\right) =$ _____
$f(0) =$ _____
$f(-2) =$ _____

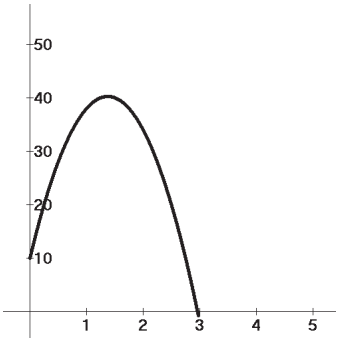
Problem Solving

15. If a ball is dropped from the top of a 100-foot cliff, its height above the ground, h, at any time, t, can be found by the function $h(t) = -16t^2 + 100$, $0 \le t \le 2.5$. Find the height of the ball at
a) 1 second b) 2 seconds

15. a) _____
b) _____

16. If a model rocket is launched vertically at 44 feet/second from the top of a 10-foot high platform, its height above ground, h, at any time, t, can be found by the function $h(t) = -16t^2 + 44t + 10$. Use the graph of the function to describe the flight of the rocket.

16. _____
_____
_____
_____



17. The braking distance, d in feet, of a vehicle can be found by the function $d = \dfrac{(V_0)^2}{2\mu g}$ where V_0 is the initial velocity in feet/sec, μ is the coefficient of friction, and g is the deceleration rate.
Find the braking distance to the nearest foot for a car traveling 35 mph ≈ 51.3 ft/sec on dry pavement ($\mu = 0.8$) if the rate of deceleration is 28 ft/sec/sec.

17. _____

