

GroupWork 3.6
7-1-10

Group Members _____

NOTE: some of these exercises are borrowed or adapted from Beginning Algebra by Elayn Martin-Gay.

1. Find the domain and range of each relation; also determine if the relation is a function:

- (a) $\{(2, 3), (2, 4), (4, 5), (5, 6)\}$ Domain: $\{2, 4, 5\}$ Range: $\{3, 4, 5, 6\}$ Not a function
 (b) $\{(a, b) \mid a \text{ even and } b \text{ odd}\}$ NOTE: $a, b \in \mathbb{Z}$ Domain: Even integers Range: Odd integers
 (c) $\{(3, 2), (1, 4), (2, 4), (7, 23)\}$ Domain: $\{1, 2, 3, 7\}$ Range: $\{2, 4, 23\}$ Function. } Not a function
 (d) $\{(a, b) \mid a \text{ prime and } b \text{ non-zero}\}$ NOTE: $a, b \in \mathbb{Z}$
 Domain: Prime integers Range: Nonzero integers. Not a function

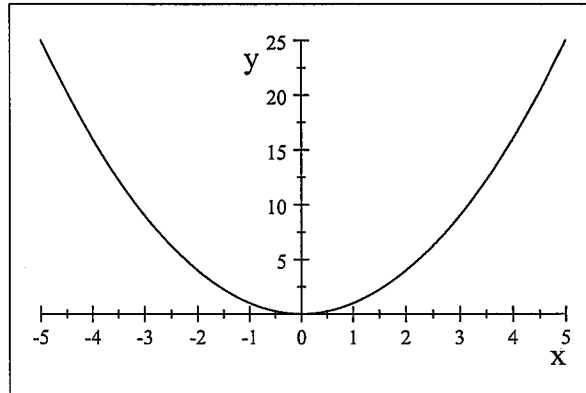
2. Find $f(-1)$, $f(0)$, and $f(12)$ for the following.

- (a) $f(x) = 2x - 5$ $f(-1) = -7$ $f(0) = -5$ $f(12) = 19$
 (b) $f(x) = x^2 + 1$ $f(-1) = 2$ $f(0) = 1$ $f(12) = 145$
 (c) $f(x) = |x|$ $f(-1) = 1$ $f(0) = 0$ $f(12) = 12$
 (d) $f(x) = |2 - x|$ $f(-1) = 3$ $f(0) = 2$ $f(12) = 10$

3. Find the domain and range of each graphed function or relation; also determine if the graph is a function or relation.

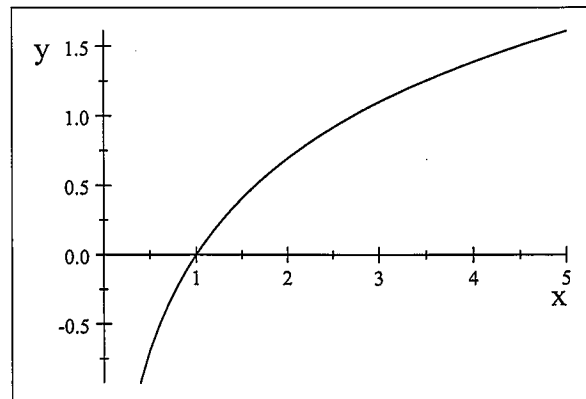
(a) x^2

Domain:
 $(-\infty, \infty)$
Range:
 $[0, \infty)$
Function

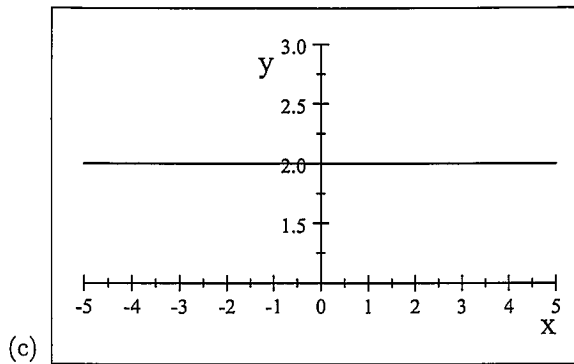


(b) $\log x$

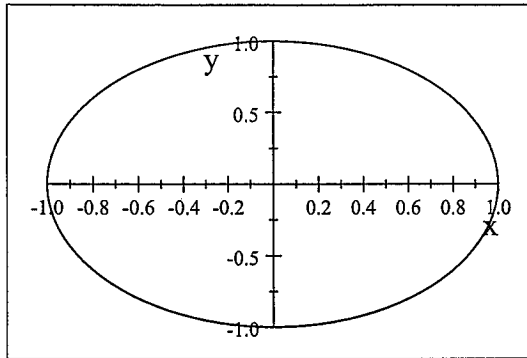
Domain:
 $(0, \infty)$
Range:
 $(-\infty, \infty)$
Function



Domain:
 $(-\infty, \infty)$
 Range:
 $\{2\}$
 Function



Domain:
 $[-1, 1]$
 Range:
 $[-1, 1]$
 Not a function. (d)



4. Given the following functions, find the indicated values:

- (a) $f(x) = 2x + 7$
1. $f(2) = 11$
 2. $f(a) = 2a + 7$
- (b) $h(x) = x^2 + 7$
1. $h(3) = 16$
 2. $h(b) = b^2 + 7$

5. In your own words define (a) function, (b) relation, (c) domain, and (d) range.

- (b) A collection of ordered pairs
 (a) A relation in which each x-value only appears once
 (c) All possible x-values
 (d) All possible y-values.