

# Answer Key

## RELATIONS, FUNCTIONS, DOMAIN & RANGE

First, let's review some basic information:

- Domain is the set of all x-values      Range is the set of all y-values
- Given a continuous graph (connected lines or curves):
  - Scan the graph left to right for domain!
  - Scan the graph up and down for range!
- To be a function, a relation must not repeat any x-values.
- When given a graph, use the vertical line test to determine if it's a function.

Record your answers to the task cards below.

1

- a) {-5, -3, 0, 2}
- b) {-7, 0, 2, 4}
- c) Yes

2

- a) {-9, -1, 3}
- b) {-2, 0, 4, 5}
- c) No

3

- a) {-2, 0, 4, 8}
- b) {1}
- c) Yes

4

- a) {-3, 0, 6}
- b) {-2, 1, 2, 8}
- c) No

5

- a) {-7, 0, 4}
- b) {-5, 0, 3, 9}
- c) No

6

- a) {-2, 0, 2}
- b) {1, 5}
- c) Yes

7

- a) {-4, -2, 0, 4}
- b) {-1, 0, 1, 4}
- c) Yes

8

- a) {-3, 1, 4}
- b) {-4, -3, -2, 1}
- c) No

9

- a) All Real Numbers
- b) All Real Numbers
- c) Yes

10

- a) All Real Numbers
- b)  $y \leq 4$
- c) Yes

11

- a)  $x \geq 0$
- b) All Real Numbers
- c) No

12

- a)  $-4 \leq x \leq 1$
- b)  $-2 \leq y \leq 2$
- c) No

13

- a) All Real Numbers
- b)  $y = 3$
- c) Yes

14

- a)  $-4 \leq x \leq 3$
- b)  $-3 \leq y \leq 4$
- c) Yes

15

- a) All Real Numbers
- b)  $-2 \leq y \leq 3$
- c) Yes

16

- a)  $x = 3$
- b) All Real Numbers
- c) No

17

- a) ~~All Real Numbers~~ 7
- b) ~~All Real Numbers~~ 2
- c) ~~Yes~~ -1

18

- a) ~~All Real Numbers~~ 22
- b) ~~Yes~~  $x = 2$
- c) ~~Yes~~  $x = 3/5$

19

- a) ~~All Real Numbers~~  $y = x + 4$
- b) ~~Yes~~  $x = 13$
- c) Yes (13, 17)

20

- a) ~~Yes~~  $3x - 10$
- b) ~~All Real Numbers~~  $x = 4/3$
- c) ~~No~~  $y = -4$