

A1

Equations

Warm Up: Classify the following numbers:

a) -11

$\mathbb{Z}$

b) $\sqrt{36}$

$\mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$

c) $\frac{24}{3}$

$\mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$

d) $\sqrt{15}$

$\mathbb{I}$

e) 14.00011

$\mathbb{Q}$

Solving Equation with variable answer:

$$3 + 4(2^3 - 2) = c$$

$$3 + 4(8 - 2) = c$$

$$3 + 4(6) = c$$

$$3 + 24 = c$$

$$\boxed{27 = c}$$

Solving Equations with variable algebraic expression:

$$7 - (4^2 - 10) + n = 10$$

$$7 - (16 - 10) + n = 10$$

$$7 - 6 + n = 10$$

$$1 + n = 10$$

$$\boxed{n = 9}$$

$$n(2 + 3) + 6 = 5n + (10 - 3)$$

$$n(5) + 6 = 5n + 7$$

$$5n + 6 = 5n + 7$$

$\boxed{\text{No Solution}}$

$$(2 \cdot 5 - 8)(3h + 6) = [(2h + h) + 6]2$$

$$2(3h+6) = (3h+6)2$$

$$6h+12 = 6h+12$$

Identity

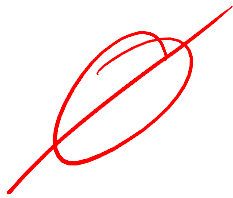
Infinite Solutions

All Real Numbers $\mathbb{R}$

$$8 \cdot 4 \cdot k + 9 \cdot 5 = (36 - 4)k - (2 \cdot 5)$$

$$\cancel{32k} + 45 = \cancel{32k} - 10$$

$$45 \neq -10$$



No Solution

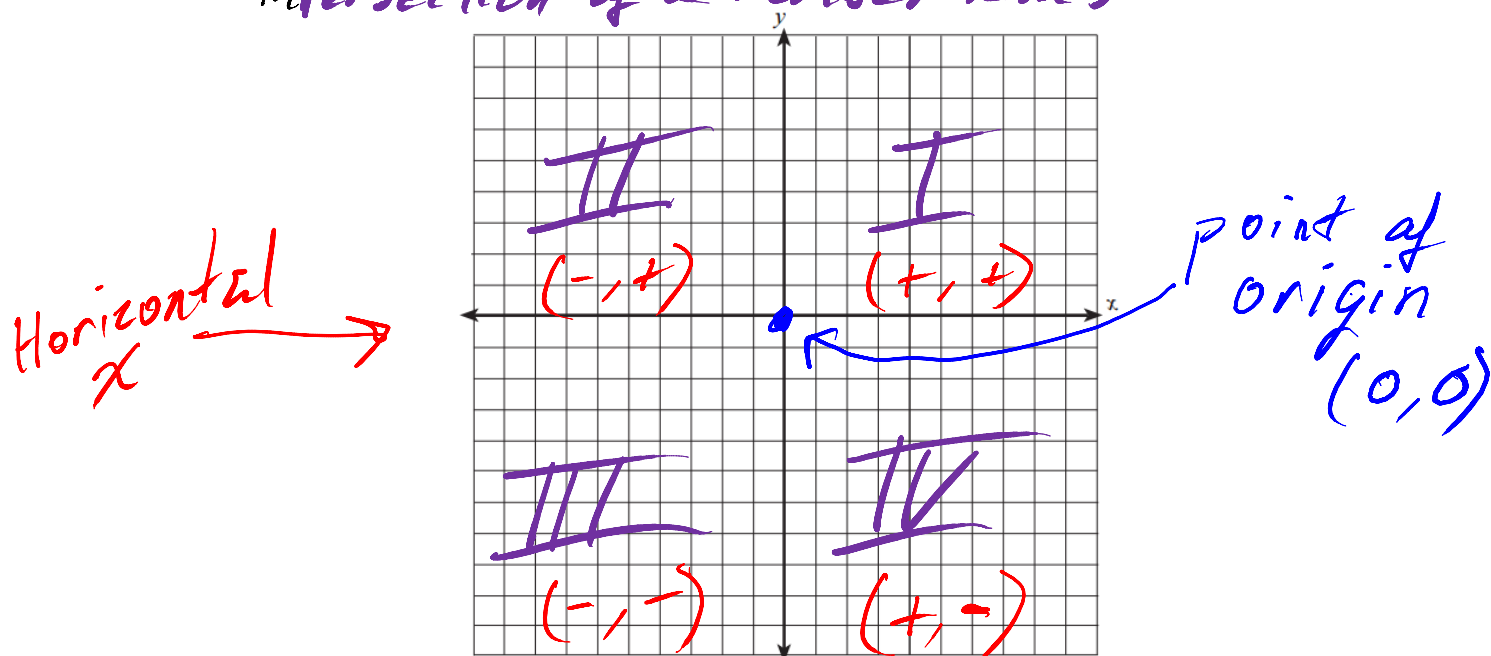
Relations: - any set of ordered pairs
- any comparison of two quantities

- Can be expressed as:

① Ordered pairs ③ Table ⑤ Map
② Equation ④ Graph

• Coordinate System:

- intersection of 2 number lines



- Ordered pair aka (x, y) - coordinate
- x-coordinate - x-value - horizontal placement
- y-coordinate - y-value - vertical placement

- Domain - all x-values in a relation
- inputs or independent variables
- Range - all y-values in a relation
- outputs or dependent variable

* No repeats

Relation Representations:

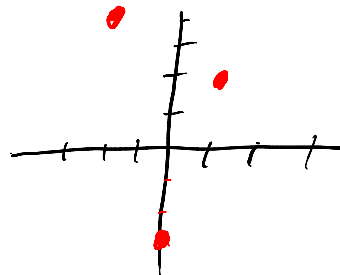
- Ordered Pairs: $\{(1, 2), (-2, 4), (0, -3)\}$

- Table

- Graph

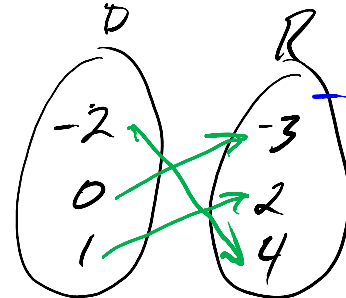
- Mapping

x	y
1	2
-2	4
0	-3



$$D: \{1, -2, 0\}$$

$$R: \{2, 4, -3\}$$

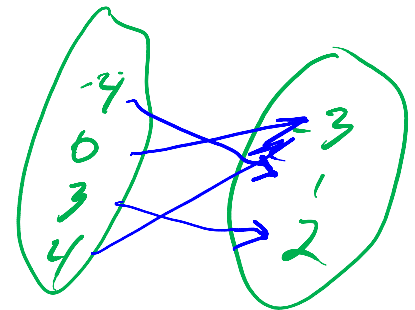


Practice: Express $\{(4, -3), (3, 2), (-4, 1), (0, -3)\}$ as a table, graph, and mapping diagram. Then state the Domain and Range.

$$D: \{-4, 0, 3, 4\}$$

$$R: \{-3, 1, 2\}$$

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



Independent vs Dependent Variables:

determines the output (domain)

depends on independent (range)

Ex: As the amount of rain decreases, so does the water level

indep

dep

Ex: The number of calories you burn increases as the number of minutes you walk increases.

dep

indep

* time, temp always indep