

BE-PRECALC Friday 8-14-09

① $\frac{6}{7}\left(\frac{4}{5}\right)$

② $(-3)^2$

③ -3^2

④ $\left(\frac{1}{2}\right)^4$

⑤ 5^{-2}

RELATION - A SET OF ORDERED PAIRS

$\uparrow$ $\uparrow$ $\uparrow$
 COLLECTION first, second two
 OF things
 things

ORDERED PAIR - (first item, second item)
 NOTATION

$\uparrow$ $\uparrow$
 X Y
 domain range
 abscissa, ordinate


 Alpha-
 betical
 order

independent, dependent
 variable variable

 $\rightarrow$ "X drives"
 PICK AN X, find Y

Function - A relation in which each element
 of the domain is paired with
 exactly one element in the range.

 Each X $\rightarrow$ ONLY ONE Y
 "X CAN only drive ONE place"

Ch. 1-1 Relations and Functions

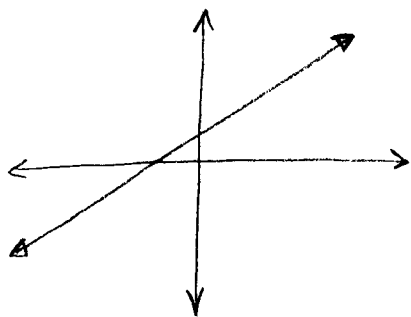
State the domain and range of each relation. Is the relation a function?

① $\{(3,6), (4,2), (3,7), (8,3), (1,0)\}$

domain = $X = \{1, 3, 4, 8\}$ range = $\{0, 2, 6, 7, 3\}$

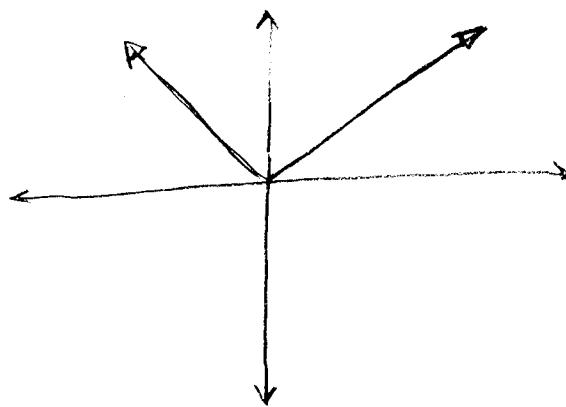
NOT A function, when $X = 3$ $y = 6$ or 7

②



$d = \{\text{all } \mathbb{R}\}$
 $r = \{\text{all } \mathbb{R}\}$

③



$d = \{\text{all } \mathbb{R}\}$
 $r = \{y \mid y \geq 0\}$

Sets of numbers:

$\{\dots -3, -2, -1, 0, 1, 2, 3 \dots\}$

$\left\{ \frac{a}{n} \right\}$ where ? or $\left\{ \begin{array}{l} \text{All term- or} \\ \text{Repeating decimals} \end{array} \right\}$

$\{\text{All non-term, non-repeat. decimals}\}$

$\left\{ \begin{array}{c} \text{RATIONAL and IRRATIONAL} \\ \hline \end{array} \right\}$

$\uparrow$
fraction

$\uparrow$ NOT $\uparrow$
fraction

Integers, Rational, Irrational, Real

$\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{I}$, $\mathbb{R}$

Function NOTATION
 $\uparrow$
 How to write
 something

$$y = f(x) = 2x + 1$$

$$y = g(x) = 3x^2$$

$$y = h(x) = 7x^3 - 2$$

$$a = f(b) = 2b + 1$$

$\uparrow$
 d.v.

$\uparrow$
 i.v.

Ordered pairs: (x, y)
 $(x, f(x))$

EVALUATE: $f(x) = 3x^3 - 7x^2 - 2x$ At $f(-4)$

$$f(x) = x(3x^2 - 7x - 2)$$

$$f(-4) = -4(3(-4)^2 - 7(-4) - 2)$$

$$f(-4) = -4(48 + 28 - 2)$$

$$\boxed{f(-4) = -296}$$

USE PARENTHESES WHEN SUBSTITUTING !!!

Homework: ① org. notes ② Spreadsheet Activity