

① Convert $0.\overline{35}$ to a fraction

② $A = \frac{1}{2}h(a+b)$ for h

③ A minivan needs 5 gal. of gas for a 120 mi trip. How much will they need for a 350 mile trip? (to nearest tenth)

• Homework review - Pg 158-159

19-24, 31-35

① $N = 0.\overline{35} = 0.35555\dots$

$$\begin{array}{r} 100N = 35.\overline{555} \\ -N = .\overline{355} \\ \hline 99N = 35.2 \end{array}$$

$$99N = 35.2$$

$$N = \frac{35.2}{99} = \frac{352}{990} = \boxed{\frac{176}{495}}$$

② $A = \frac{1}{2}h(a+b) \quad \therefore \boxed{h = \frac{2A}{(a+b)}}$

③ $\frac{5 \text{ gal}}{120 \text{ mi}} = \frac{g}{350 \text{ mi}} \quad \therefore \frac{120g}{120} = \frac{5 \cdot 350}{120}$

$$g = \frac{175}{12} \approx \boxed{14.6 \text{ gal}}$$

$$\begin{array}{r} 14.58 \\ 12 \overline{) 175} \\ \underline{12} \\ 55 \\ \underline{48} \\ 70 \\ \underline{60} \\ 100 \end{array}$$

More About Square Roots

What is $\sqrt{25}$?

5, because $5 \cdot 5 = 25$

What about -5 ?

$-5 \cdot -5 = 25$ This is also a square root of 25

(*) Convention: $\sqrt{25} = 5$ the positive or principal square root

$$-\sqrt{25} = -5$$

$$\pm\sqrt{25} = \pm 5 = 5, -5$$

$$\sqrt{16} = ?$$

$$-\sqrt{100} = ?$$

$$\sqrt{64} = ?$$

$$\pm\sqrt{49} = ?$$

$$\pm\sqrt{10} = ? \text{ Between what two integers?}$$

$$\pm\sqrt{10} \approx \pm 3.16227766 \quad \text{Why } \approx ?$$

$$\sqrt{-10} = ?$$

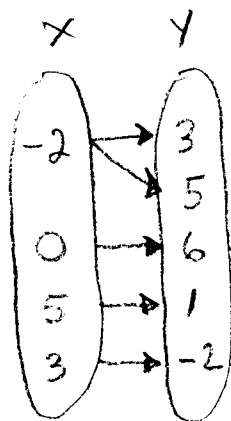
RELATION A SET OF ORDERED PAIRS.

(EX) $\{(-2, 3), (-2, 5), (0, 6), (5, 1), (3, -2)\}$

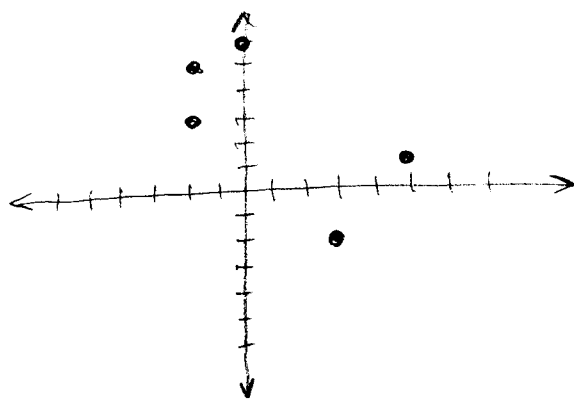
Other ways TO SHOW A RELATION:

X	Y
-2	3
-2	5
0	6
5	1
3	-2

TABLE



MAPPING



GRAPH

IDENTIFY THE (IV, DV) AND (d, r).

- AN EQUATION IS ANOTHER WAY TO SHOW A RELATION.
- IF the equation has 2 VARIABLES, ONE is the domain the other is the RANGE — SO YOU CAN GRAPH the EQUATION!!

SOLVE FOR
THE D.V.

(get y by itself)

"PICK x, find y" $\Rightarrow$ y depends on x!

* EX GRAPH $4x + y = 3$

Step 1 Solve for y :

$$\begin{array}{r} 4x + y = 3 \\ -4x \qquad -4x \end{array}$$

$$y = 3 - 4x \text{ OR}$$

$$y = -4x + 3$$

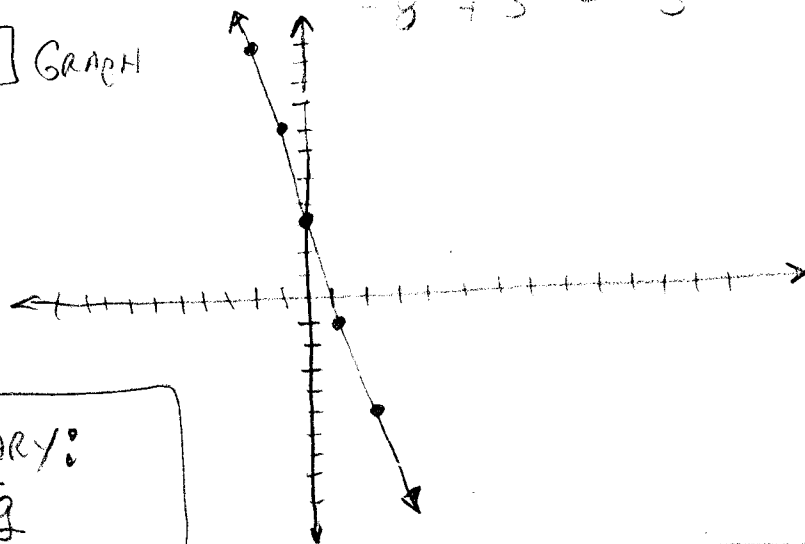
Step 2 Make a T-Table, Pick 5 "x" values to start:

Pick X, find y

X	$y = -4x + 3$	(x, y)
-2	$-4(-2) + 3$ $8 + 3 = 11$	(-2, 11)
-1	$-4(-1) + 3$ $4 + 3 = 7$	(-1, 7)
0	$-4(0) + 3 = 3$	(0, 3)
1	$-4(1) + 3$ $-4 + 3 = -1$	(1, -1)
2	$-4(2) + 3$ $-8 + 3 = -5$	(2, -5)

USE MORE X VALUES TO $\pm \infty$ IF NEEDED

Step 3 GRAPH



NOTE: UNLESS TOLD OTHERWISE, ASSUME domain = {Reals}

Summary:

* M y T g

Solve for y Table Graph

CH 4-4 EQUATIONS AS RELATIONS

EX 3 Pg 213 GRAPH $4x + 2y = 10$ if domain
 $= \{-1, 0, 2, 4\}$

$\Rightarrow$ Solve for y : $-4x$ $-4x$

$$\frac{2y}{2} = \frac{-4x + 10}{2}$$

$$y = \frac{-4x + 10}{2}$$

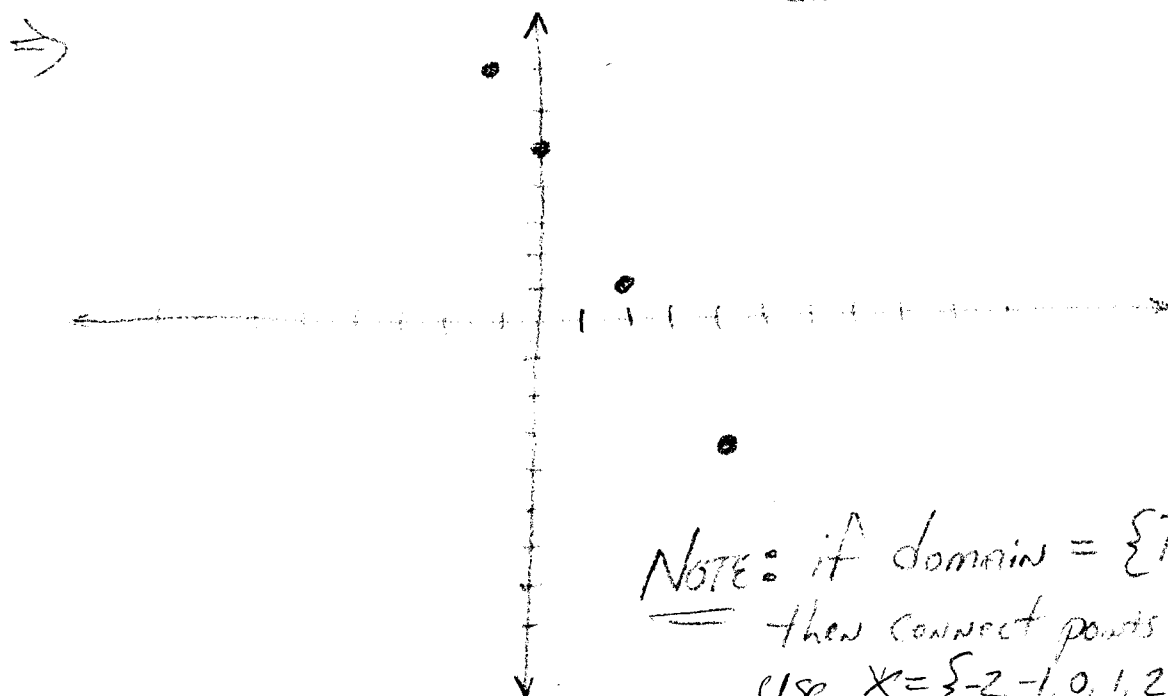
"Heart Division"

$$y = -2x + 5$$

$\Rightarrow$

x	$y = -2x + 5$	(x, y)
-1	$-2(-1) + 5 = 2 + 5 = 7$	$(-1, 7)$
0	$-2(0) + 5 = 5$	$(0, 5)$
2	$-2(2) + 5 = 1$	$(2, 1)$
4	$-2(4) + 5 = -8 + 5 = -3$	$(4, -3)$

$\uparrow$ $\uparrow$
 domain RANGE



NOTE: if domain = $\{\text{Reals}\}$
 then connect points with line.
 use $x = \{-2, -1, 0, 1, 2\}$ if
 NONE given.

Homework:

Page 215 # 33, 34, 35, 36

↓
use
domain
given

⇒ ... points

↓
ASSUME
domain is
{All REALS}
⇒ line

Use yTg method.
