

BE-1A TUESDAY 1-15-08

Given: domain $x = \{-2, -1, 0, 1, 2\}$

Make a table of the relation
and then graph the relation for:

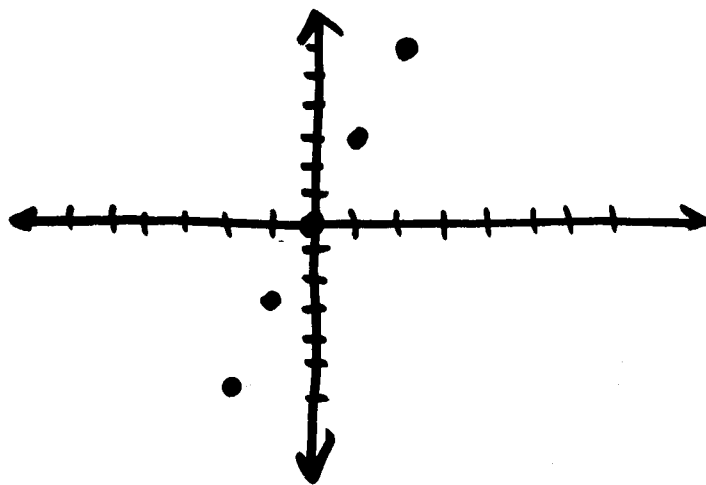
① $y = 3x$

② $y = x + 5$

REF. CH. 4-4
EQUATIONS AS
RELATIONS

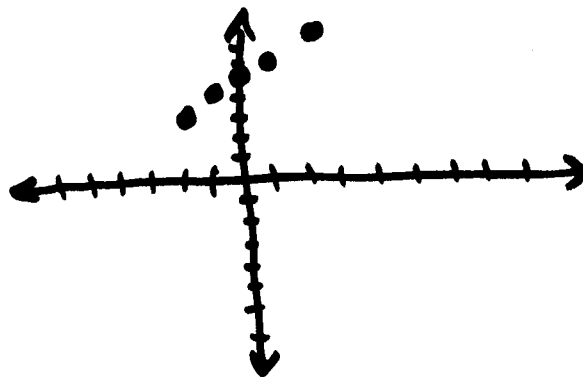
①

y	
$\parallel$	
x	$3x$
-2	$3(-2) = -6$
-1	$3(-1) = -3$
0	$3(0) = 0$
1	$3(1) = 3$
2	$3(2) = 6$



②

x	$x+5=y$
-2	$(-2)+5 = 3$
-1	$(-1)+5 = 4$
0	$(0)+5 = 5$
1	$(1)+5 = 6$
2	$(2)+5 = 7$



You can see it is EASY TO complete
 A table of (x, y) pairs if you
 know the domain AND AN equation
 of the form $y = \{ \overset{x \text{ on}}{\text{this side}} \}$.

BUT WHAT if y is NOT "by itself"?

EX) domain = $\{-1, 0, 2, 4\}$

$$4x + 2y = 10$$

$$-4x$$

$$-4x$$

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

$$y = -2x + 5$$

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



EX 3 Pg 213

* If an equation has more than one variable, to solve it you must say what variable you are solving for.

LOOK AT THE differences:

Solve

$$\begin{array}{r} 2x + 3 = 5 \\ -3 \quad -3 \end{array}$$

$$\frac{2x}{2} = \frac{2}{2}$$

$$\boxed{x = 1}$$

ONE
variable,
solve for x
is understood

Solve for y

$$\begin{array}{r} 2x + 3y = 5 \\ -2x \quad -2x \end{array}$$

$$\frac{3y}{3} = \frac{-2x + 5}{3}$$

$$\boxed{y = -\frac{2}{3}x + \frac{5}{3}}$$

two variables,
solve for y
must be
stated

Solve for x

$$\begin{array}{r} 2x + 3y = 5 \\ -3y \quad -3y \end{array}$$

$$\frac{2x}{2} = \frac{-3y + 5}{2}$$

$$\boxed{x = -\frac{3}{2}y + \frac{5}{2}}$$

two variables,
solve for x
must be
stated.

So, back to the original question.
 What do you do if you know the domain and the equation is NOT "solved for y"?

Right... solve it for y

Ex) Solve $2x + 2y = 12$ for
 a domain of $\{-1, 0, 2\}$

* Solve means find the three (x, y)
 pairs THAT MAKE A true expression
 when substituted into $2x + 2y = 12$

Step 1 solve for y

$$\begin{array}{r} 2x + 2y = 12 \\ -2x \qquad -2x \end{array}$$

$$\frac{2y}{2} = \frac{-2x + 12}{2}$$

Step 2 TABLE $y = -1x + 6$

x	$-x + 6 = y$
-1	$-(-1) + 6 = 7$
0	$-(0) + 6 = 6$
2	$-(2) + 6 = 4$

SOLUTION SET
 $\{(-1, 7), (0, 6), (2, 4)\}$

Solve for the variable specified:

$$2x + y = 7 \text{ for } y$$

$$3x + 4y = 12 \text{ for } y$$

$$3x + 4y = 12 \text{ for } x$$

$$3x - 4y = 7 \text{ for } y$$

Homework:

Remember, ① solve means list all of the (x, y) pairs in set notation AFTER you find them.

② IF your equation is NOT solved for y already, do this first then make your T-table

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