Warm Up

Write the following equation in slope-intercept form.

$$6x - 4y = 15$$

$$-6x \qquad -6x$$

$$-4y = -6x + 15$$

$$\frac{-4y}{-4} = \frac{-6x}{-4} \; \frac{15}{-4}$$

$$y = \frac{3}{2}x + \frac{-15}{4}$$

What Happened to the Guy Who Fell Into an Upholstery Machine?

Use the slope and y-intercept to graph each equation. The graph, if extended, will cross a letter. Write this letter in the box containing the exercise number.

1 $y = \frac{3}{4}x - 2$ **4** $y = \frac{1}{3}x + 4$ **7** $y = -\frac{1}{2}x$

2 $y = -2x + 1$ **5** $y = 3x - 1$ **8** $y = -4x + 3$

3 $y = -\frac{5}{2}x - 4$ **6** $y = -\frac{7}{4}x - 5$ **9** $y = \frac{8}{3}x - 5$

10 $y = x + 3$ **13** The temperature is −6°C and rising at a rate of 2° per hour. **15** $y = 5$ **17** $y = -1$

11 $y = -x - 4$ **14** The temperature is 12°C and dropping at a rate of 3° per hour. **16** $x = -2$ **18** $x = 3$

12 $y = x$

6	12	3	9	15	1	17	7	10	14	8	18	4	13	2	16	5	11
H	E	I	S	F	U	L	L	Y	R	E	C	O	V	E	R	E	D

Horizontal Line

$\frac{\Delta y}{\Delta x} = \frac{0}{2} = 0$

$y = mx + b$

$y = 0x + 3$

$y = 3$

Value of y is always 3

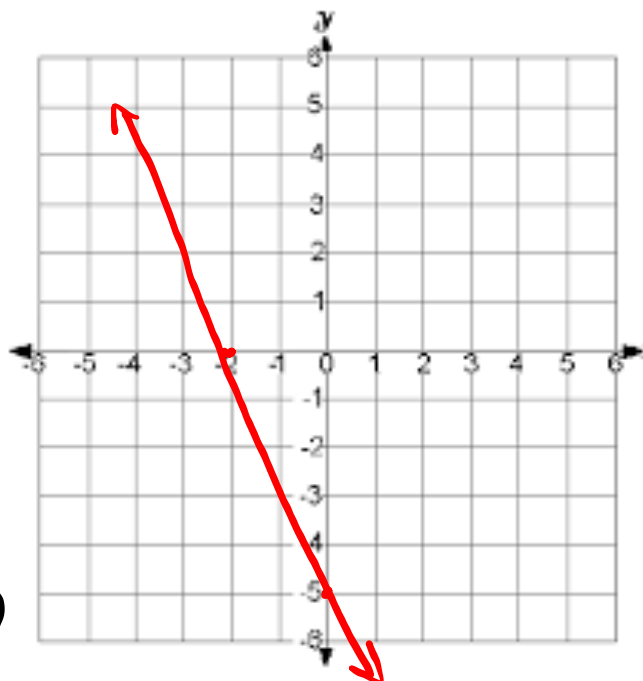Value of x can be whatever

---

Vertical Line

$\frac{\Delta y}{\Delta x} = \frac{2}{0}$

undefined
can't divide
by zero

No Slope

$x = 2$

no slope

How to Graph an Equation in Standard Form

Example: $5x + 2y = -10$

Step 1: Find the y-intercept by substituting zero in for x and solving for y.

$5(0) + 2y = -10$

$\dfrac{2y}{2} = \dfrac{-10}{2}$

$y = -5 \quad (0, -5)$

Step 2: Find the x-intercept by substituting zero in for y and solving for x.

$5x + 2y = -10$

$5x + 2(0) = -10$

$\dfrac{5x}{5} = \dfrac{-10}{5}$

$x = -2$

$(-2, 0)$

Step 3: Draw a line **through** both points with a ruler. Don't forget arrows!

What if you have the following equation?

2x + 5y = 6

$$2x + 5(0) = 6$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x = 3$$

$$(3, 0)$$

$$2x + 5y = 6$$

$$2(0) + 5y = 6$$

$$\frac{5y}{5} = \frac{6}{5}$$

$$y = \frac{6}{5}$$

$$\left(0, \frac{6}{5}\right)$$
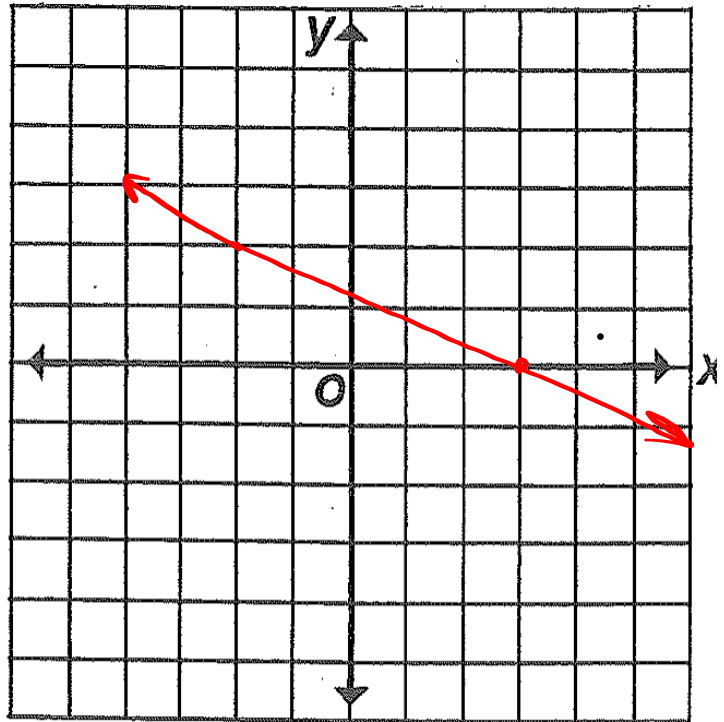
slope: $-\frac{2}{5}$

Let's find the slope:

$$2x + 5y = 6$$

$$-2x \qquad -2x$$

$$\frac{5y}{5} = \frac{-2x}{5} + \frac{6}{5}$$

$$y = -\frac{2}{5}x + \frac{6}{5}$$

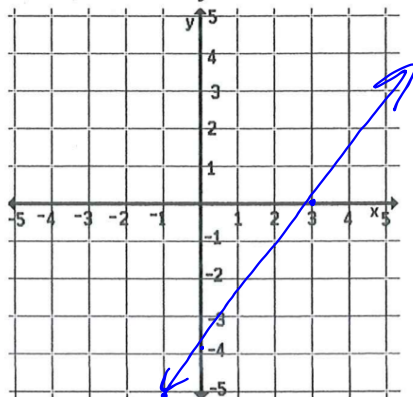Practice Graphing:

$3x - 2y = 6$
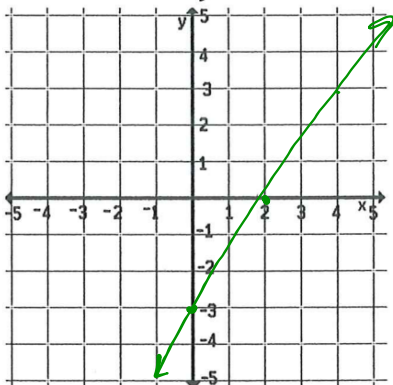
x-int: $(2, 0)$
y-int: $(0, -3)$

$3x + 6y = 12$
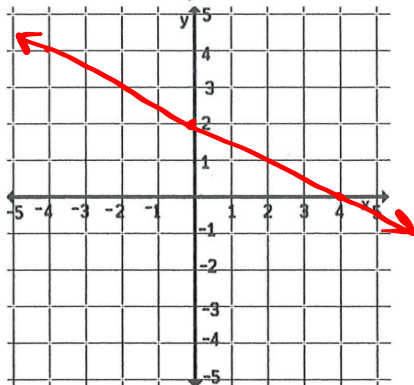
x-int: $(4, 0)$
y-int: $(0, 2)$

$x - 2y = -4$
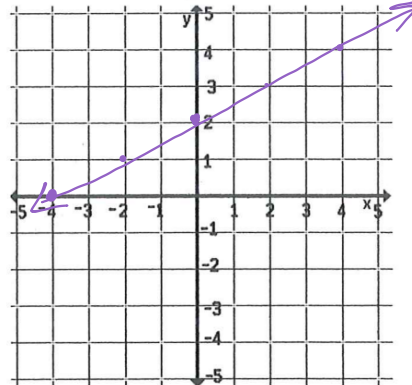
x-int: $(-4, 0)$
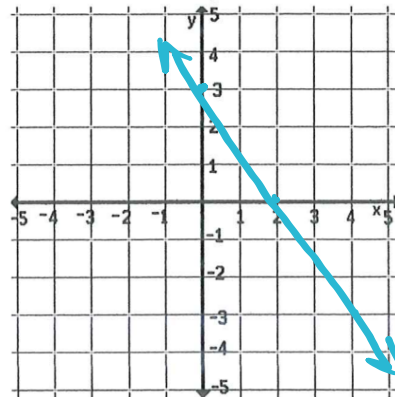y-int: $(0, 2)$

$4x - 3y = 12$

x-int: $(3, 0)$
y-int: $(0, -4)$

$3x - 5y = -15$
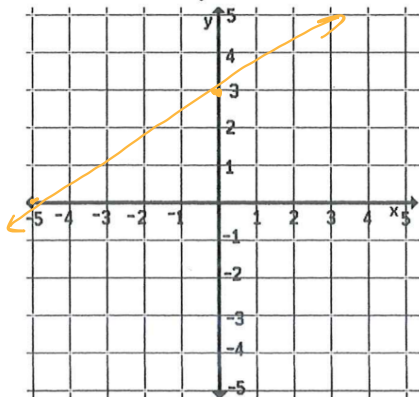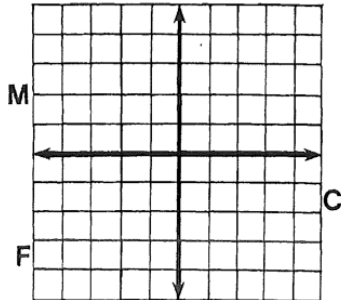
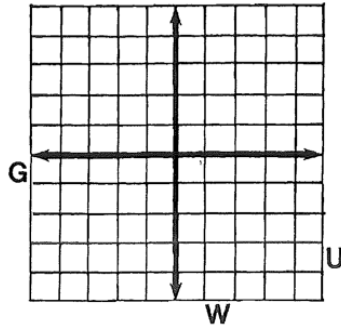x-int: $(-5, 0)$
y-int: $(0, 3)$

$3x + 2y = 6$

x-int: $(2, 0)$
y-int: $(0, 3)$

Why Did Miss Muffet Need A Road Map?

Graph any equation below. (Let each space along the axes represent 1 unit.) The graph, if extended, will cross a letter. Look for this letter in the string of letters near the bottom of the page and CROSS IT OUT each time it appears. When you finish, write the letters that have NOT been crossed out in the rectangle at the bottom of the page.
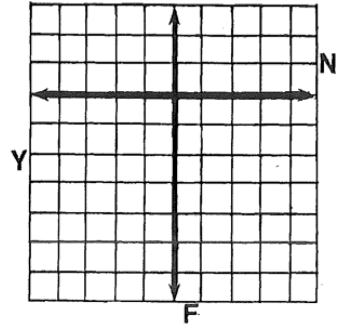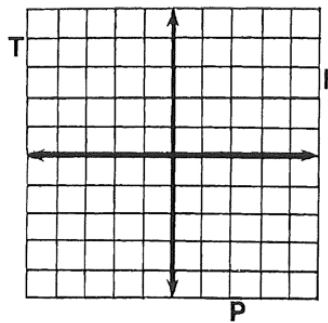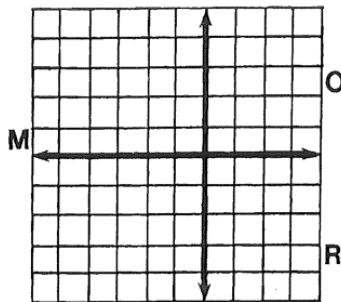
① $2x + 3y = 6$

M
F
C

② $^-x + 2y = 4$

G
U
W

③ $3x + y = {}^-6$

N
Y
F

④ $4x - 3y = 12$

T
I
P

⑤ $^-3x - 5y = 15$

M
O
R

⑥ $2x + y = 5$

L
H
U

⑦ $x - 2y = {}^-3$

T
P
A

⑧ $^-3x + 5y = {}^-10$

S
N
Y

⑨ $x + y = 0$

E
H
A
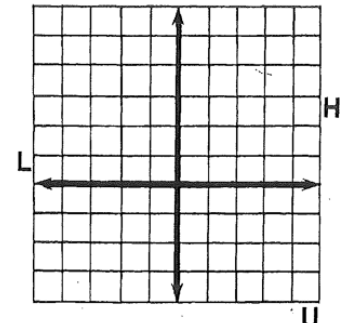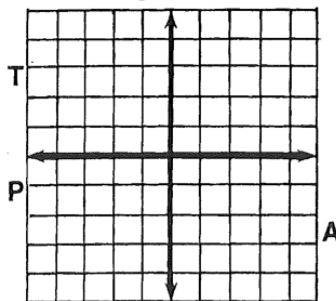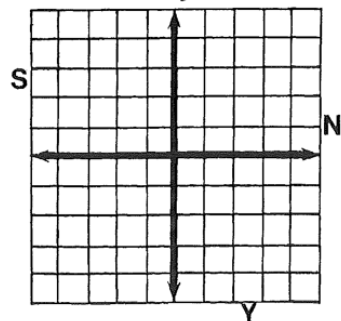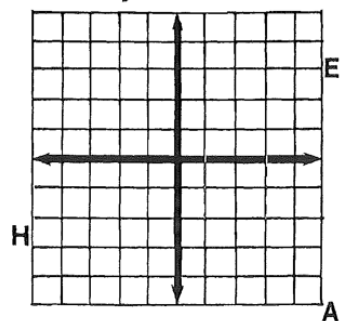
PUSHAPNELAGONFSANTMCHIMEAPCRAWNGIFPHEANIYUN

ANSWER:

Homework

Finish classwork