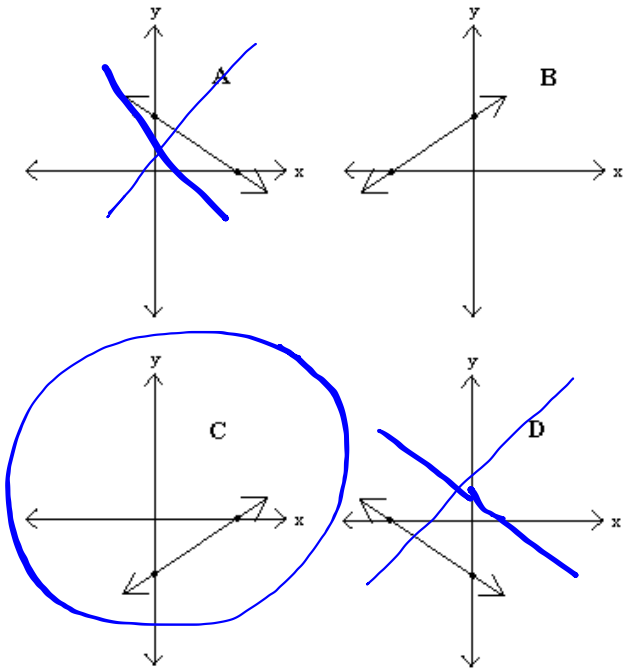
WARM-UP...

Problem : Which of the following could be the graph of 4x - 6y = 12 ?



$y = mx + b$

$4x - 6y = 12$

$\frac{-6y}{-6} = \frac{-4x}{-6} + \frac{12}{-6}$

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

positive

negative y-int

Example 2 Graphing a Linear Function Given Its Equation in Slope-Intercept Form

Graph the linear function with equation: $y = \frac{1}{2}x + 3$

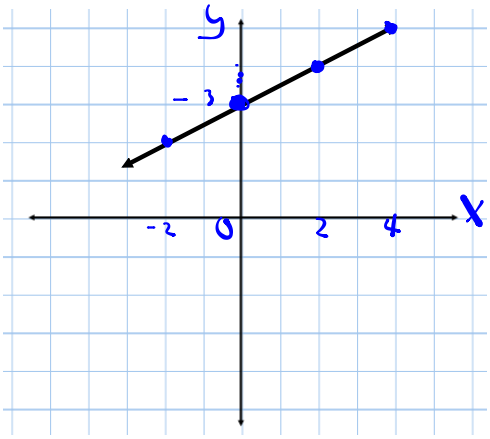
Method #1: Use the Slope-Intercept Form

STEP 1: Plot the y-intercept

STEP 2: Use RISE / RUN to get next point

$m = \frac{\text{rise}}{\text{run}}$

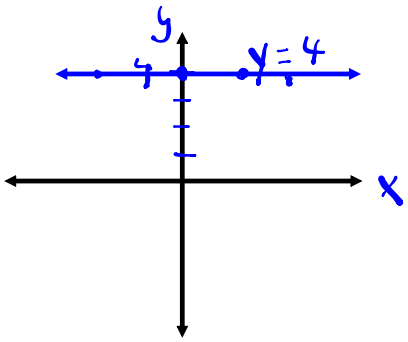
$\frac{\text{rise}}{\text{run}} = \frac{1}{2}$ or $\frac{-1}{-2}$

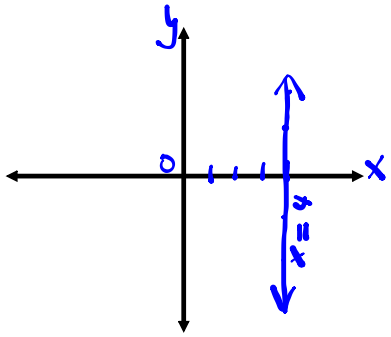


Here are a couple of SPECIAL CASES:

1) $y = 4$

2) $x = 4$





Finish the statements below:

Horizontal Lines will always have the equation $y = c$.

Vertical Lines will always have the equation $x = c$.

a number

Graphing Linear Functions

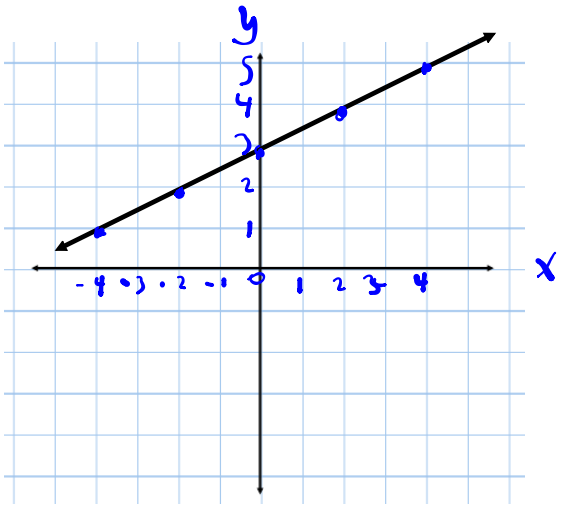
Method #2 - Table of Values (must have at least 3 points)

ex: $3x - 6y + 18 = 0$

$-6y = -3x - 18$

$y = \frac{1}{2}x + 3$

x	y
-4	1
-2	2
0	3
2	4
4	5



Method #3 - Using *x* / *y* intercepts

ex: $x - 5y - 10 = 0$

x-int let y=0

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

$x - 10 = 0$

$x = 10$

(10,0)

y-int let x=0

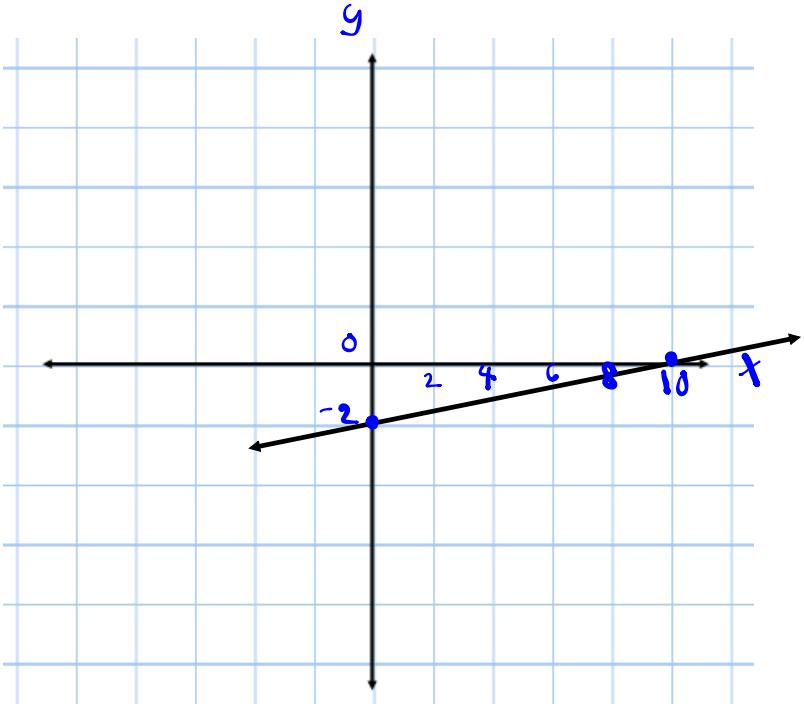
$0 - 5y - 10 = 0$

$-5y - 10 = 0$

$-5y = 10$

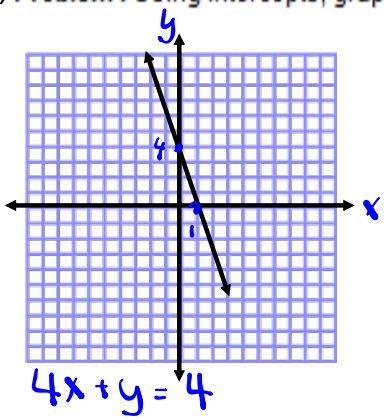
$\frac{-5y}{-5} = \frac{10}{-5}$

$y = -2$



II. Graphing LINEAR relations using intercepts

1) **Problem :** Using intercepts, graph $4x + y = 4$



$4x + y = 4$

x-int let y=0

$4x + 0 = 4$

$\frac{4x}{4} = \frac{4}{4}$

$x = 1$ (1,0)

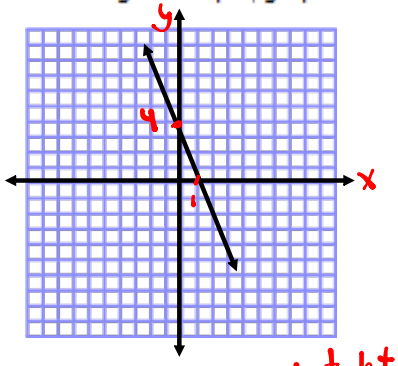
y-int let x=0

$4(0) + y = 4$

$y = 4$

(0,4)

2) **Problem :** Using intercepts, graph $20x + 5y = 20$



x-int let y=0

$20x + 5(0) = 20$

$\frac{20x}{20} = \frac{20}{20}$

$x = 1$

(1,0)

y-int let x=0

$20(0) + 5y = 20$

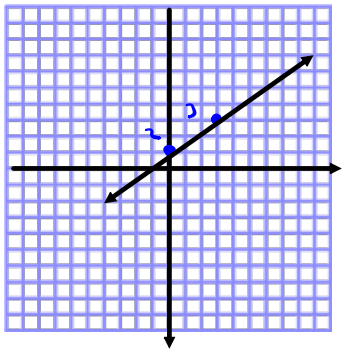
$\frac{5y}{5} = \frac{20}{5}$

$y = 4$

(0,4)

Handout P. 155

1.

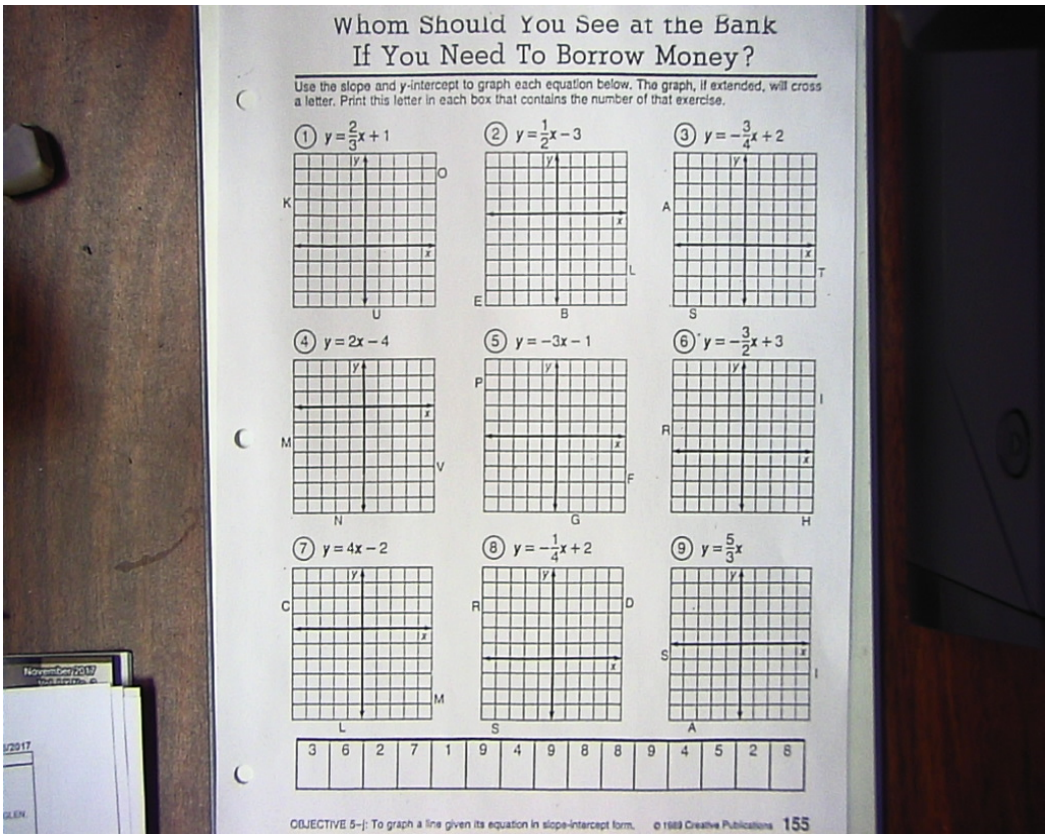


O

$y = \frac{2}{3}x + 1$

$\frac{\text{rise}}{\text{run}}$

Puzzle Worksheet - graphing slope y-int



Whom Should You See at the Bank If You Need To Borrow Money?

Use the slope and y-intercept to graph each equation below. The graph, if extended, will cross a letter. Print this letter in each box that contains the number of that exercise.

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

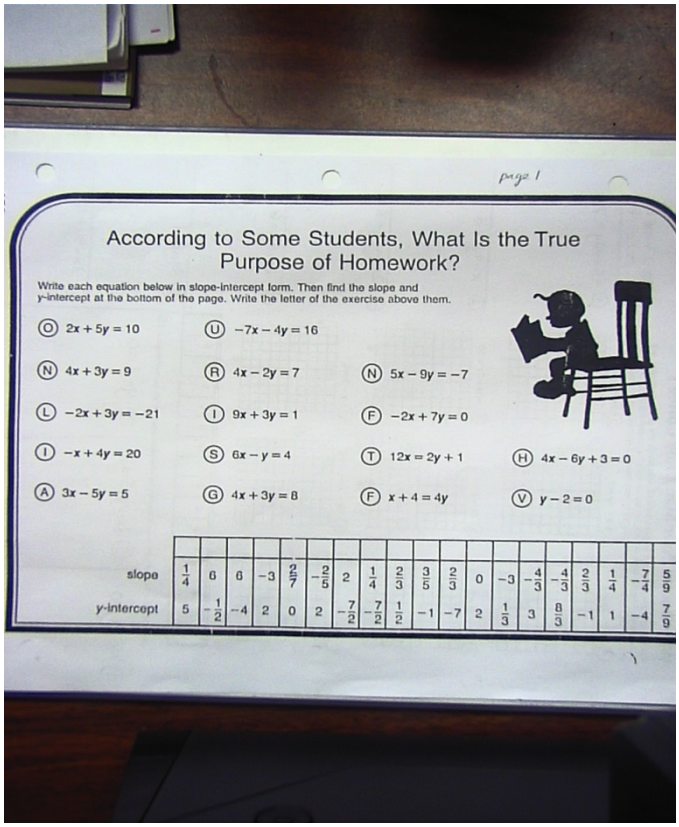
④ $y = 2x - 4$ ⑤ $y = -3x - 1$ ⑥ $y = -\frac{3}{2}x + 3$

⑦ $y = 4x - 2$ ⑧ $y = -\frac{1}{4}x + 2$ ⑨ $y = \frac{5}{3}x$

3	6	2	7	1	9	4	9	8	8	9	4	5	2	8

OBJECTIVE 5–I: To graph a line given its equation in slope-intercept form. © 1988 Creative Publications 155

Puzzle Worksheet - Homework purpose.



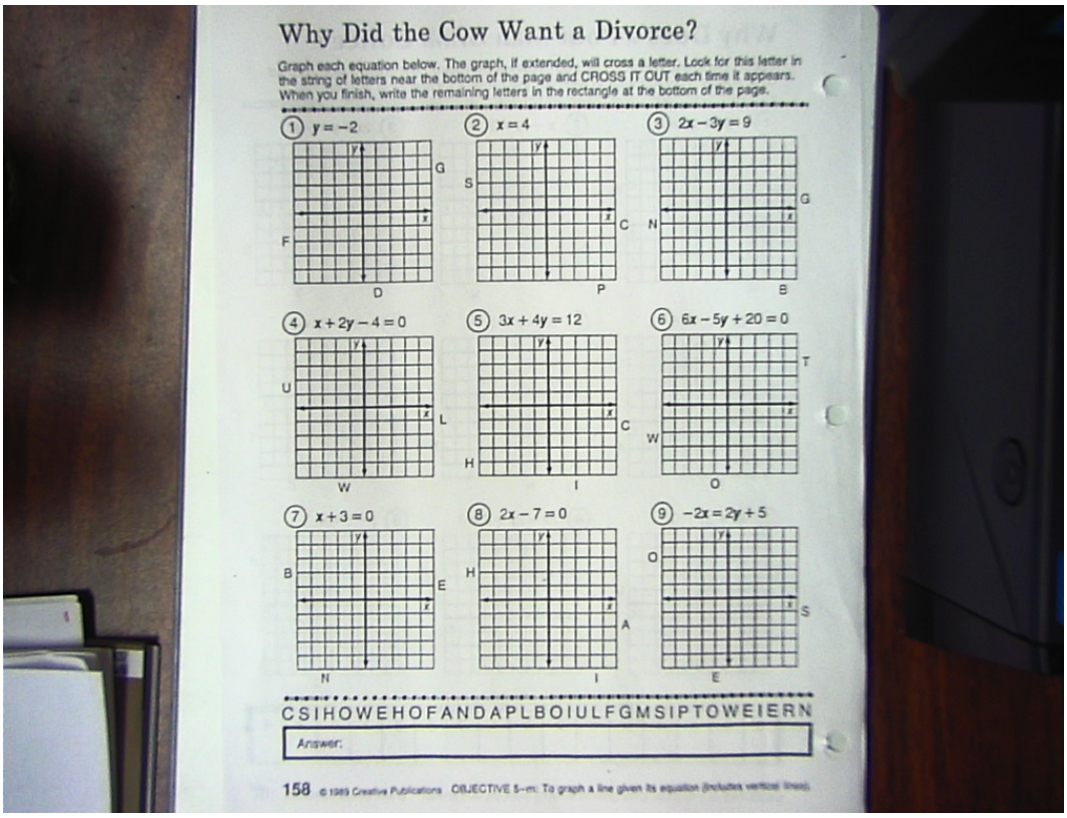
page 1

According to Some Students, What Is the True Purpose of Homework?

Write each equation below in slope-intercept form. Then find the slope and y-intercept at the bottom of the page. Write the letter of the exercise above them.

(O) $2x+5y=10$	(U) $-7x-4y=16$																		
(N) $4x+3y=9$	(R) $4x-2y=7$	(N) $5x-9y=-7$																	
(L) $-2x+3y=-21$	(I) $9x+3y=1$	(F) $-2x+7y=0$																	
(I) $-x+4y=20$	(S) $6x-y=4$	(T) $12x=2y+1$	(H) $4x-6y+3=0$																
(A) $3x-5y=5$	(G) $4x+3y=8$	(F) $x+4=4y$	(V) $y-2=0$																
slope	$\frac{1}{4}$	6	6	-3	$\frac{2}{7}$	$-\frac{2}{5}$	2	$\frac{1}{4}$	$\frac{2}{3}$	$\frac{3}{5}$	$\frac{2}{3}$	0	-3	$-\frac{4}{3}$	$\frac{4}{3}$	$\frac{2}{3}$	$\frac{1}{4}$	$-\frac{7}{4}$	$\frac{5}{9}$
y-intercept	5	$-\frac{1}{2}$	-4	2	0	2	$-\frac{7}{2}$	$-\frac{7}{2}$	$\frac{1}{2}$	-1	-7	2	$\frac{1}{3}$	3	$\frac{8}{3}$	-1	1	-4	$\frac{7}{9}$

Puzzle Worksheet - Graphing #1 (Cow).pdf



Why Did the Cow Want a Divorce?

Graph each equation below. 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 remaining letters in the rectangle at the bottom of the page.

(1) $y=-2$ — G, F, D

(2) $x=4$ — S, C, P

(3) $2x-3y=9$ — G, N, B

(4) $x+2y-4=0$ — U, L, W

(5) $3x+4y=12$ — C, H, I

(6) $6x-5y+20=0$ — T, W, O

(7) $x+3=0$ — B, E, N

(8) $2x-7=0$ — H, A, I

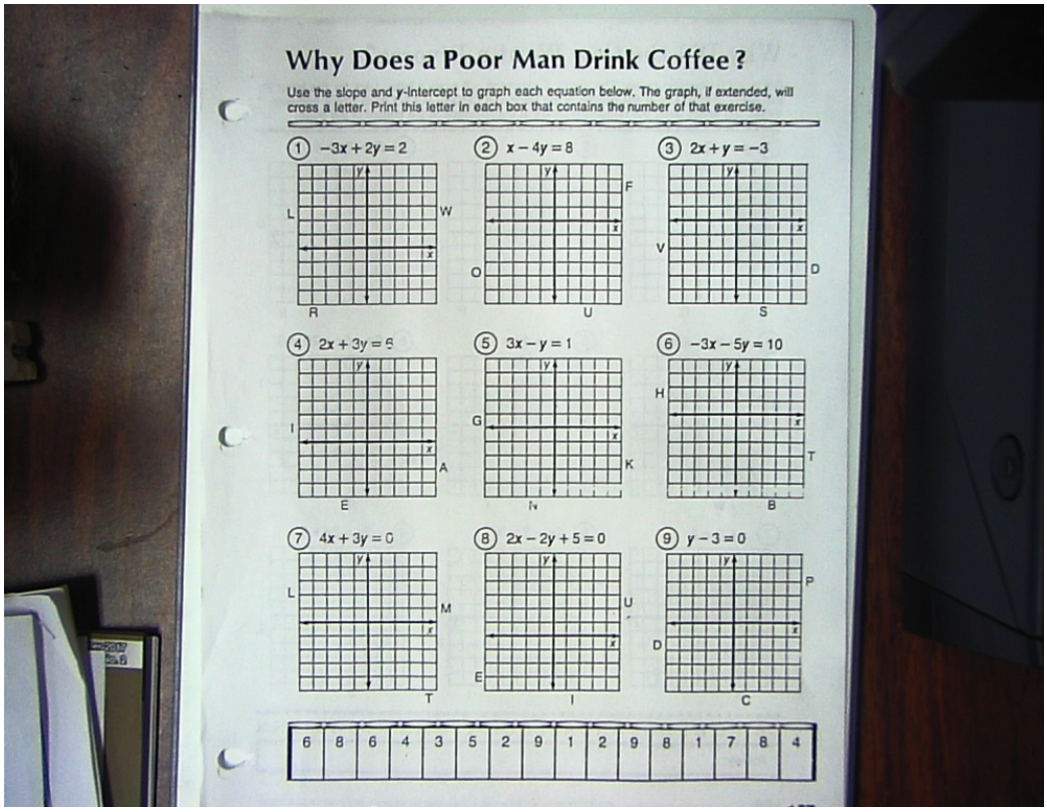
(9) $-2x=2y+5$ — O, S, E

CSIHOWEHOFANDAPLBOIULFGMSIPTOWEIERN

Answer:

  OBJECTIVE 5–m: To graph a line given its equation (including vertical lines).

Puzzle Worksheet - Graphing #2 (Coffee).pdf



Why Does a Poor Man Drink Coffee?

Use the slope and y-intercept to graph each equation below. The graph, if extended, will cross a letter. Print this letter in each box that contains the number of that exercise.

1. $-3x + 2y = 2$ — L, W, R
2. $x - 4y = 8$ — O, F, U
3. $2x + y = -3$ — V, D, S
4. $2x + 3y = 6$ — I, A, E
5. $3x - y = 1$ — G, K, N
6. $-3x - 5y = 10$ — H, T, B
7. $4x + 3y = 0$ — L, M, T
8. $2x - 2y + 5 = 0$ — E, U, I
9. $y - 3 = 0$ — D, P, C

6	8	6	4	3	5	2	9	1	2	9	8	1	7	8	4

PRACTICE PROBLEMS...

***Finish both puzzle sheets

p. 362 #7, 15, 21

Attachments

Puzzle Worksheet - Graphing #1 (Cow).pdf

Puzzle Worksheet - Graphing #2 (Coffee).pdf