DEFINITION: The y-intercept is the point on the y-axis where your line crosses or meets the y-axis. It is also the coordinate that has an x-value of ZERO. (0, y)

For each line on the grid to the right, state the COORDINATE of the y-intercept. Line A is done for you.

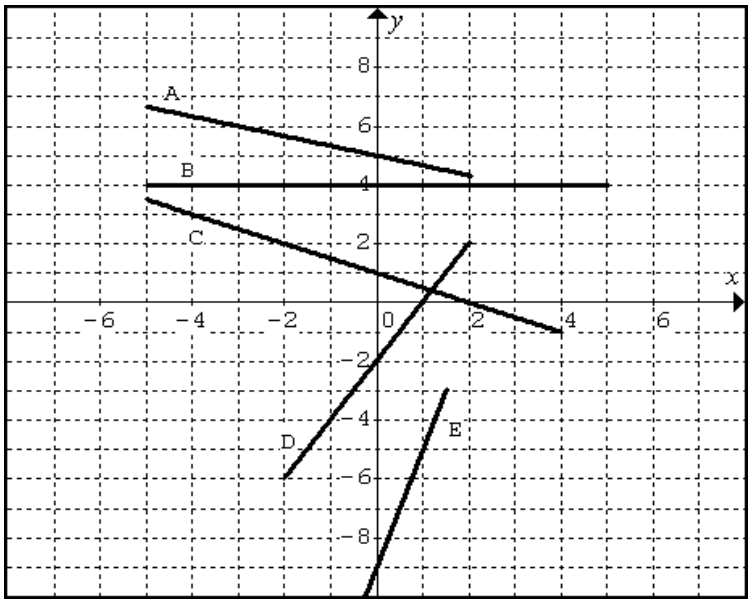
A) (0 , 5)

B) (,)

C) (,)

D) (,)

E) (,)



What do all these points have in common?

DEFINITION: The x-intercept is the point on the x-axis where your line crosses or meets the x-axis. It is also the coordinate that has a y-value of ZERO. (x, 0)

For each line on the grid to the right, state the COORDINATE of the x-intercept. Line A is done for you. *

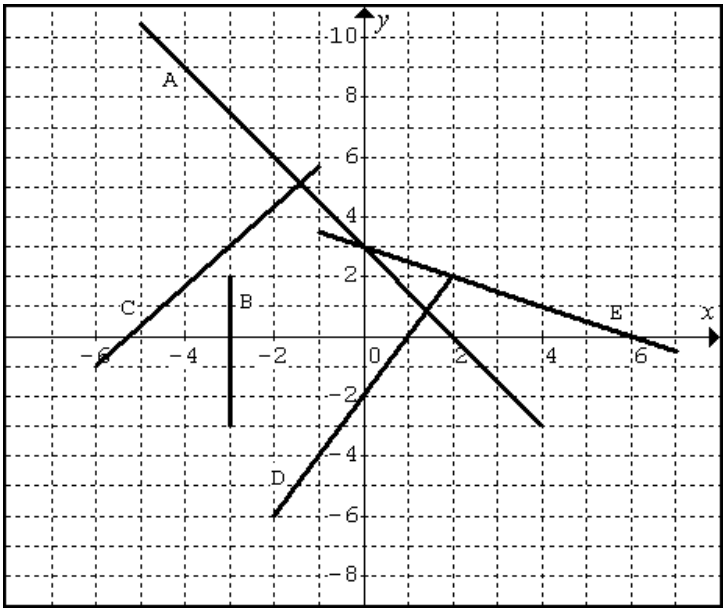
A) (2 , 0)

B) (,)

C) (,)

D) (,)

E) (,)



What do all these points have in common?

Lesson: Graphing with x-Intercepts and y-Intercepts

- Note problems where you are asked to find both the intercepts, the line is usually not in y=mx+b form, rather a different form (possibly standard form Ax + By + C = 0).

QUESTION 1: PART A

Given the equation 3x + 4y = 12 what are the intercepts of this line.

SOLUTION

To find the y-intercept, the x-value must be 0.

1. Substitute x=0
2. Solve the equation for y

The y-intercept is (0 ,)

To find the x-intercept, the y-value must be 0.

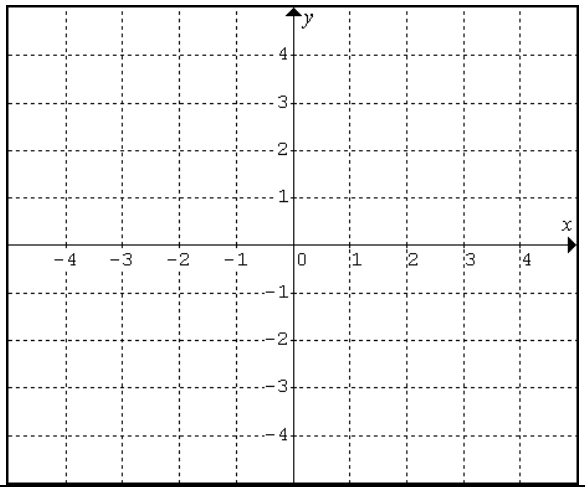
1. Substitute y=0
2. Solve the equation for y

The x-intercept is (, 0)

QUESTION 1: PART B

Graph the line 3x + 4y = 12 using the intercepts.

Plot the coordinates of each intercept and connect the two points to create your line.



QUESTION 2 : PART A

Given the equation -6x + 12y – 24 = 0 what are the intercepts of this line.

SOLUTION

To find the y-intercept, the x-value must be 0.

1. Substitute x=0
2. Solve the equation for y

The y-intercept is (0 ,)

To find the x-intercept, the y-value must be 0.

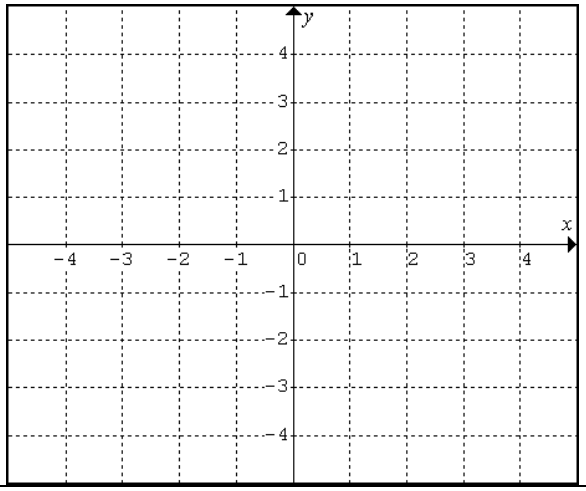
1. Substitute y=0
2. Solve the equation for y

The x-intercept is (, 0)

QUESTION 2 : PART B

Graph the line -6x + 12y – 24 = 0 using the intercepts.

Plot the coordinates of each intercept and connect the two points to create your line.



Practice: Graphing with x-Intercepts and y-Intercepts

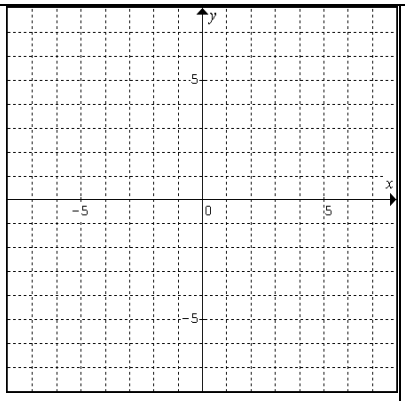
a. $4x - y = 8$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



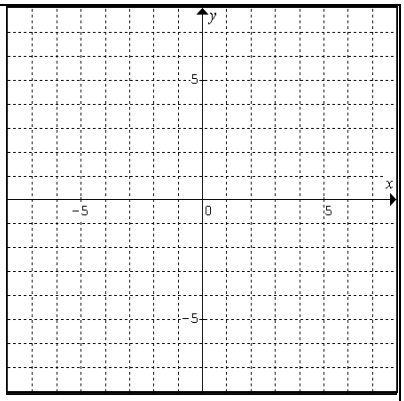
b. $7x - 9y = 63$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



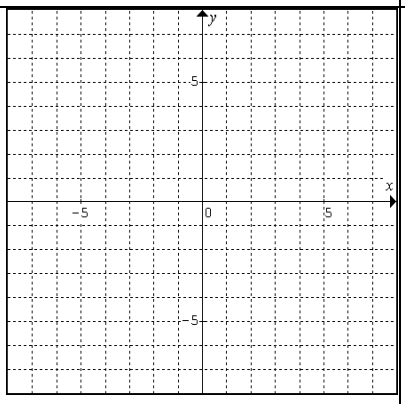
c. $x + 2y = 5$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



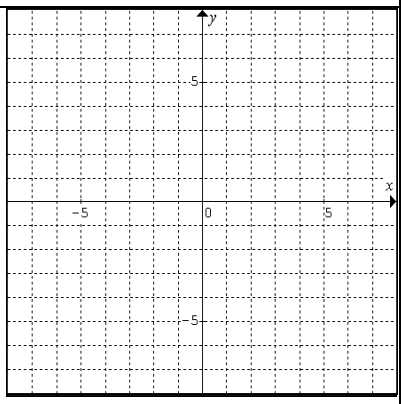
d. $2x - 5y = -4$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



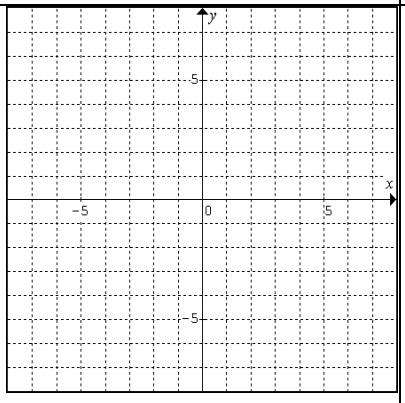
e. $3x + 4y - 8 = 0$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



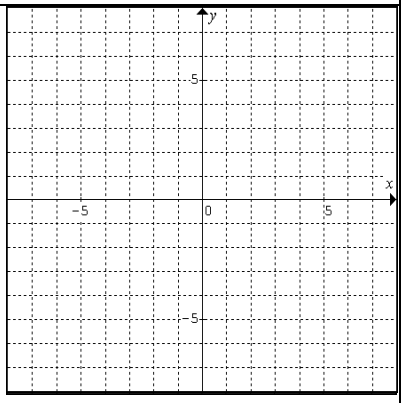
f. $4x - y = 9$

x-intercept:

(_____, _____)

y-intercept:

(_____, _____)



ANSWERS: a. (2, 0) (0, -8) b. (9, 0), (0, -7) c. (5, 0), (0, 2.5) d. (-2, 0), (0, 0.8), e. $(\frac{8}{3}, 0)$ (0, 2) f. $(\frac{9}{4}, 0)$ (0, -9)