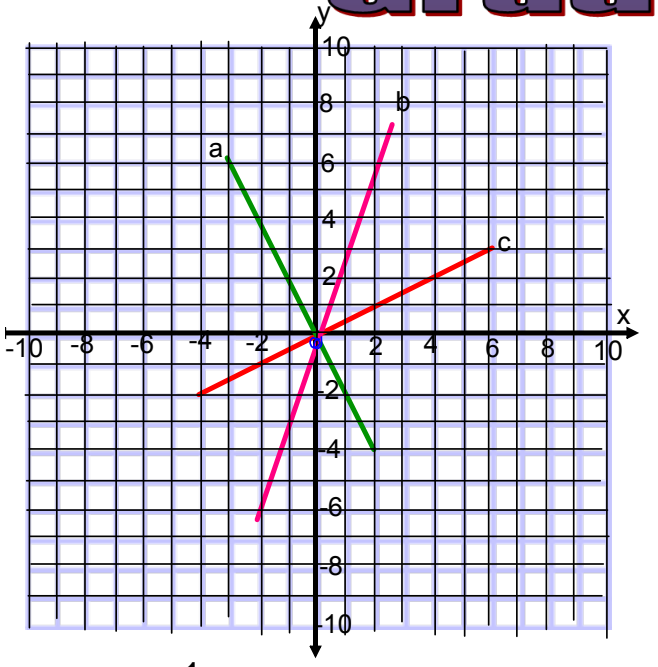
Curriculum Outcomes:

(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

(PR2) Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.

Student Friendly: Being able to identify a linear pattern in a t-table.

Warm-Up Grade 9



Method 1:

Use a table of values to match the following equations to the correct graph.

$y = \frac{\Delta y}{\Delta x} x \pm \#$

i) $y = \frac{1}{2}x$

$\Delta x = 2$

x	y
-2	-1
0	0
2	1

C

ii) $y = -2x$

$\Delta x = 1$

x	y
-1	2
0	0
1	-2

A

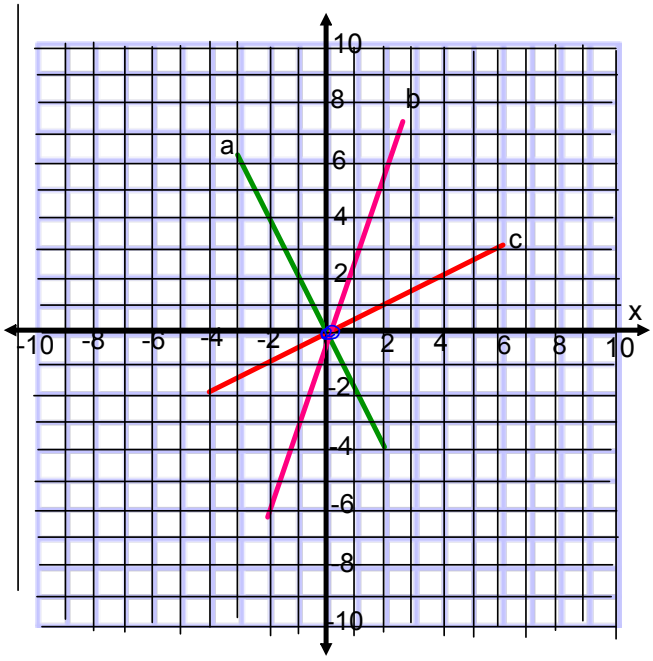
iii) $y = 3x$

$\Delta x = 1$

x	y
-1	-3
0	0
1	3

B

Warm-Up Grade 9



Method 2:
Use slope and a point

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$\frac{\Delta y}{\Delta x} = \frac{\updownarrow^{+}_{-}}{\leftrightarrow^{-}_{+}}$

i) $y = \frac{1}{2}x$

$x = 0$
$y = 0$
$(0,0)$

$\frac{\Delta y}{\Delta x} = \frac{1}{2}\ \begin{matrix}\uparrow\\ \rightarrow\end{matrix}$

C

ii) $y = -2x$

$x = 0$
$y = 0$
$(0,0)$

$\frac{\Delta y}{\Delta x} = \frac{-2}{1}\ \begin{matrix}\downarrow\\ \rightarrow\end{matrix}$

A

iii) $y = 3x$

$x = 0$
$y = 0$
$(0,0)$

$\frac{\Delta y}{\Delta x} = \frac{3}{1}\ \begin{matrix}\uparrow\\ \rightarrow\end{matrix}$

B

$x + 2y = -6$ (−x, −x)

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

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

$x = 0$

$y = -3$

$(0, -3)$

$\frac{\Delta y}{\Delta x} = \frac{-1}{2}$

$10x - 7y = 35$ (−10x, −10x)

$-7y = -10x + 35$

$\frac{-7y}{-7} = \frac{-10x}{-7} + \frac{35}{-7}$

$y = \frac{10}{7}x - 5$

$x = 0$

$y = -5$

$(0, -5)$

$\frac{\Delta y}{\Delta x} = \frac{10}{7}$

Graph the following using the point-slope formula

$x + y = 4$

$y = -x + 4$

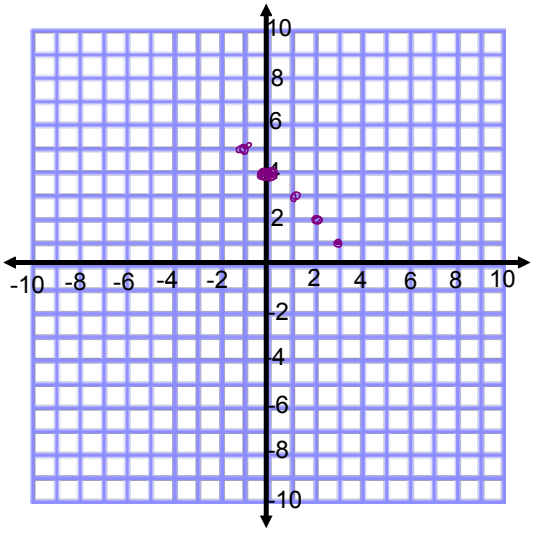
$x = 0$

$y = 4$

$(0, 4)$

$\frac{\Delta y}{\Delta x} = \frac{-1}{1}$ ↓ →

$= \frac{1}{-1}$



$2x - 3y = 12$

$-3y = -2x + 12$

$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{12}{-3}$

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

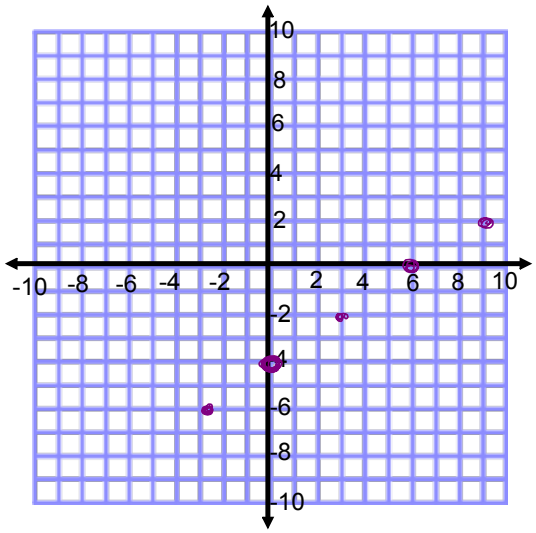
$x = 0$

$y = -4$

$(0, -4)$

$\frac{\Delta y}{\Delta x} = \frac{2}{3}$ ↑ →

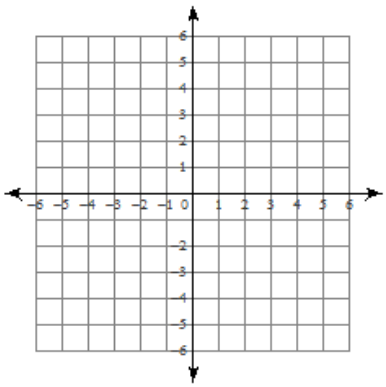
$= \frac{-2}{-3}$



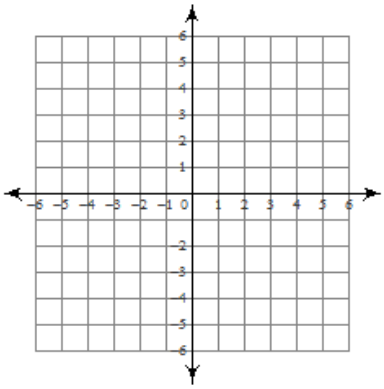
Homework

worksheet

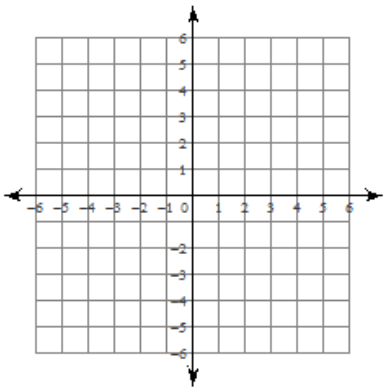
5) $x - y = 2$



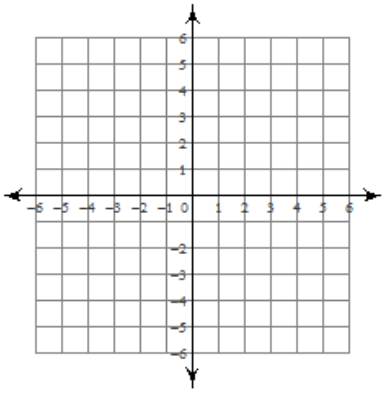
6) $2x + y = 0$



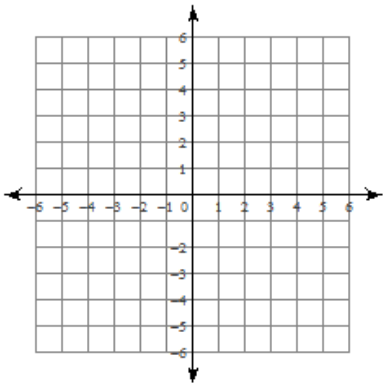
7) $x + 2y = 4$



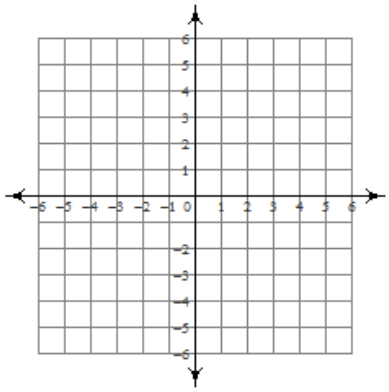
8) $x - 3y = -9$



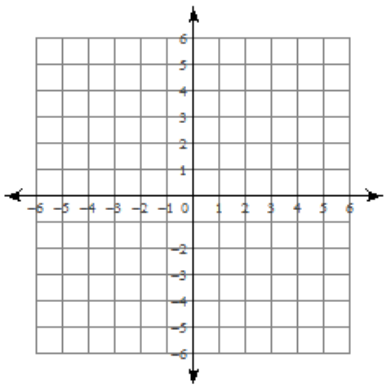
9) $y = 5 + 3x$



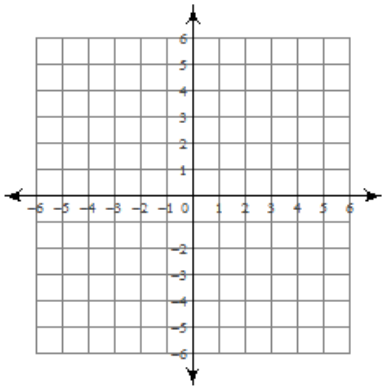
10) $0 = y + \frac{5}{4}x$



11) $14x + 10y = -40$



12) $-y = 2 + x$



Attachments

Graphing Equations.ks-ipa

Graphing Equation_ws.docx