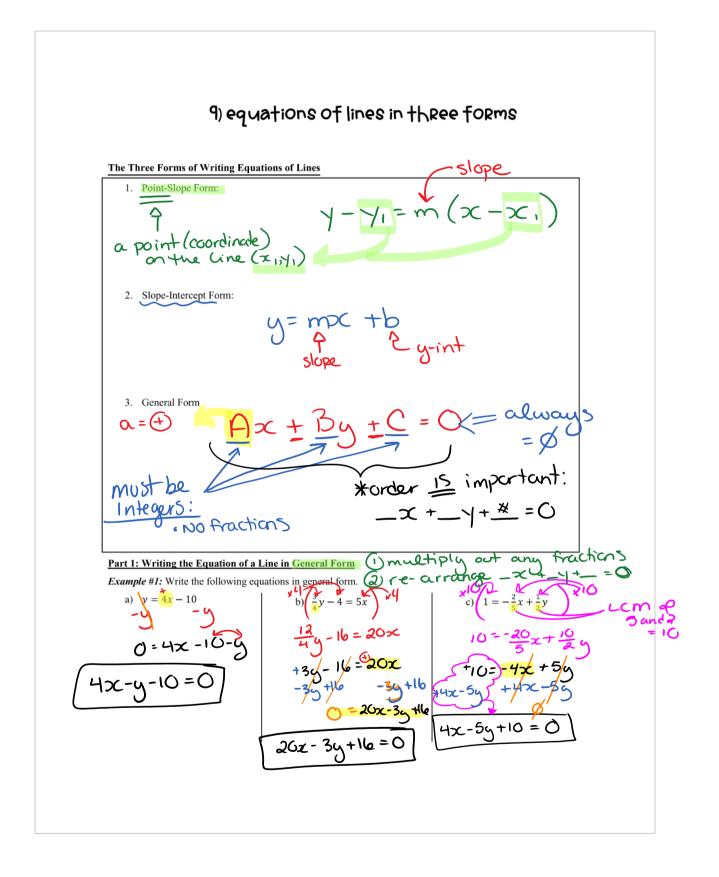
9 - Equations of Lines in THREE FORMS

December 3, 2018 10:51 AM



$$$$$$$$

$$\begin{array}{c} x = \frac{\pi}{2} \quad \frac{\pi}{2} \frac{\pi}{2} \frac{\pi}{2} \\ \begin{array}{c} (1) = 1 \\ (1 + 1) = m \\ (1 + 2) = \frac{\pi}{2} \\ (1 + 2) =$$

1 FMPC 10 Updated June 2018 The Equation of a Line The three forms Slope-Intercept Form Point-Slope Form General Form Ax + By + C = 0y = mx + b $y - y_1 = m(x - x_1)$ Derived from $m = \frac{y_2 - y_1}{x_2 - x_1}$ m is the slope A must be positive. b is the y-intercept A,B,C are integers. Cross multiply to get pointslope form. Need one point and slope Write in general form. 138. y = 3x - 5139. y - 5 = x + 7140. 5 - 2x = -4y + 2141. $-\frac{1}{2}x - 4y = 2$ 142. $y - 5 = \frac{2}{3}x + 7$ 143. 5 = $\frac{2}{3}y + \frac{3}{4}x$ 144. Challenge #6 Write the equation of the line that passes through A(2,5) and has slope 3. Express your answer in general from and in slope intercept form.

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The Equation of a Line

IMPORTANT!!! There is only one line that passes through a given point with a given slope.

Given the slope and a point:

Eg.1. A line passes through A(2,5) and has slope 3. Write the equation of the line.

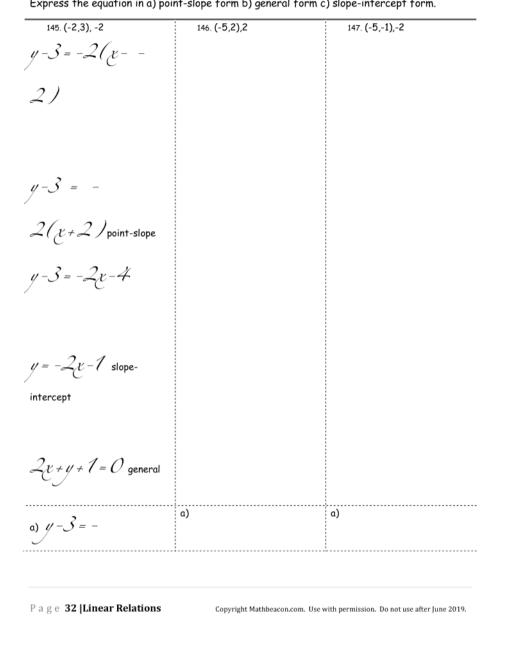
Use the slope formula :

$m = \frac{y_2 - y_1}{x_2 - x_1}$	Cross-Multiply. This creates the <u>Point-Slope form</u> of an equation.	
$m(x_2 - x_1) = y_2 - y_1$	Fill in what you know. m = 3. Substitute the given point in for $x_1 \mbox{ and } y_1 \mbox{.}$	
3(x-2) = (y-5)	This is our equation in point-slope form . We no longer need the subscripts on x and y	
3x - 6 = y - 5	Expanded.	
3x - y - 1 = 0	Collecting the terms to the left side is called writing the equation in general form.	
Or	general rorm.	
y = 3x - 1	Isolate for 'y' to get the equation in slope-intercept form .	

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Write the equation of the line that passes through the given point and has the given slope. Express the equation in a) point-slope form b) general form c) slope-intercept form.

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2(x+2)		
2(x+2) b) 2x+y+1=0	ь)	ь)
c) <i>y</i> = -2x-1	c)	c)
148. (-3,4),- ¹ / ₃	149. (2,4), ¹ / ₂	150. (0,7), -1
a)	α)	a)
b)	b)	b)
c)	c)	c)
Express the equation in a)	point-siope torm b) siope-i	ntercept form c) general form.
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151. $(3, -6), m = -3$	152. (4,6), <i>m</i> = 5	153. $(-2, -1), m = \frac{1}{2}$
Start with Point-		2
Slope formula:		
yy_ = m(xx_)		
y6 = -3(x-		
3)		
y + 6 = -3(x-		
3)		
y + 6 = -3x+9		
y = -3x + 3		
3x + y - 3 = 0		
a) y + 6 = -3(x-3)	a)	a)
b) <i>y = -3x+3</i>	b)	ь)
c) 3x + y - 3 =	c)	c)
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