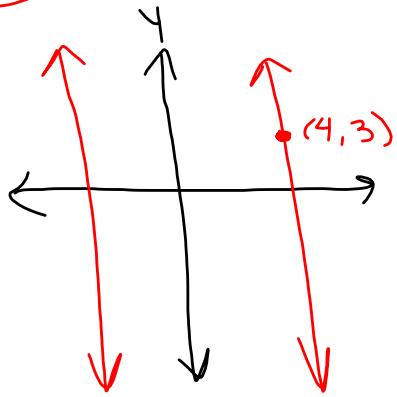
## DO NOW

Which equation represents a line that is parallel to the y-axis and passes through the point (4,3)?

1) $x = 3$
2) $x = 4$
3) $y = 3$
4) $y = 4$




Mar 25-8:17 AM

Writing the equation of a line in slope-intercept form:

Find the SLOPE of the line using the formula (if necessary) FIRST!

Substitute the slope ($m$) in $y = mx + b$

Substitute a point (x,y) into the equation and solve for b

Use $m$ and $b$ to write the equation

Feb 23-8:39 AM

1) Write the equation of the line with a slope of -2 thatgoes through the point (3,5)

$x, y$

$m = -2$

$b = 11$

$y = mx + b$

$5 = -2(3) + b$

$5 = -6 + b$

$+6 \quad +6$

$11 = b$

$y = -2x + 11$

2) Write the equation of the line that passes through the points (0,3) and (2,6)

$\frac{6-3}{2-0} = \frac{3}{2}$

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

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

$y = mx + b$

$6 = \frac{3}{2}(2) + b$

$6 = 3 + b$

$3 = b$

Feb 23-8:36 AM

## Point-Slope Form

$$(y - y_1) = m(x - x_1)$$

m is slope

$(x_1, y_1)$ is one of your points

1) $m = 4$, (-2,-1)

$x_1, y_1$

$y - (-1) = 4(x - (-2))$

$y + 1 = 4(x + 2)$

$y = mx + b$

2) (2, 0) and (5, -3)

$\frac{-3-0}{5-2} = \frac{-3}{3} = -1 = m$

$y - (-3) = -1(x - 5)$

$y + 3 = -1(x - 5)$

$y - 0 = -1(x - 2)$

$y = -1(x + 2)$

Jan 3-11:27 AM

3) Write the equation of the line parallel to the line y = 2x - 4 that goes through the point (4,1)

$m = 2$ ; $(4,1)$

$y - 1 = 2(x - 4)$

$y - 1 = 2x - 8$

$+1 \quad +1$

$y = 2x - 7$

$m = 2$ ; $(4,1)$

$1 = 2(4) + b$

$1 = 8 + b$

$-7 = b$

$y = 2x - 7$

4) Write the equation of the line perpendicular to the line 3y - 4x = 12 that goes through the point (6,0)

$+4x \quad +4x$

$\frac{3y}{3} = \frac{4x}{3} + \frac{12}{3}$

$y = \frac{4}{3}x + 4$

1 slope $= -\frac{3}{4}$

point $(6,0)$

$y - 0 = -\frac{3}{4}(x - 6)$

$y = -\frac{3}{4}(x - 6)$

$m -\frac{3}{4}$ ; $(6,0)$

$y = -\frac{3}{4}x + 4.5$

$y = mx + b$

$0 = -\frac{3}{4}(6) + b$

$0 = -\frac{9}{2} + b$

$4.5 = b$

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