

Journal Entry:

Read through Solve It, Getting Ready on the top of page 82. Use DRAW to give a good reflection on how you know that they points that you picked are perpendicular and parallel to pine street. What method or tools did you use to make sure that it would be correct?

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Section 2-4 More About Linear Equations

Students will be able to write an equation of a line given its slope and a point on the line.

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If you know the slope and a point on the line, you can write the equation in **point-slope form**.

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

Prove: $(x_2 - x_1)m = \frac{y_2 - y_1}{x_2 - x_1} \cdot (x_2 - x_1)$

$$y - \underline{y_1} = \underline{m}(x - \underline{x_1}) \quad \text{fill in } m \text{ + } (x_1, y_1)$$

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What is the equation for a line that passes through (7, -1) with a slope of -3?

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

$$y - (-1) = -3(x - 7)$$

$$y + 1 = -3(x - 7)$$

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What is the point-slope form for the equation of a line that goes through the points (5, 1) and (7, 9)?

$$m = \frac{9-1}{7-5} = \frac{8}{2} = 4$$

$$y - 1 = 4(x - 5)$$

$$y - 9 = 4(x - 7)$$

Are everyone's the same? Put into slope-intercept form. Are they the same now?

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Standard Form:

$Ax + By = C$, where A, B, and C are real numbers (and when possible integers), and both A and B are not 0.

What the equation of the following in standard form?

$$y = -\frac{3}{4}x + 9$$

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

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

$$4\left(\frac{3}{4}x + y = 9\right) = 3x + 4y = 36$$

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Find the intercepts and use them to graph the line.

$-4x + 6y = -12$

X-int
 $-\cancel{4}x + \cancel{6}y = -12$
 $-\cancel{4} = -4$
 $x = 3$

Y-int
 $x = 0$
 $-\cancel{4}(0) + \cancel{6}y = -12$
 $\cancel{6} = 6$
 $y = -2$

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The office manager of a small office ordered 140 packs of printer paper. Based on average daily use, she know that the paper will last her about 80 days.

a) Graph the situation.
 b) What is the equation in standard form?
 c) How many packs should she expect to have in 30 days?

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Define:

parallel never touch | same slope
 ↓ different y-int.

perpendicular form 90° angles
 • opposite reciprocal slopes

The slopes of two lines in the same plane indicate how the lines are related.

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What is the equation in slope intercept form?

a) line parallel to $4x + 2y = 7$ and goes through $(4, -2)$

old line: $4x + 2y = 7 - 4x \frac{2}{2} = -4x \frac{2}{2}$
 $y = -2x + \frac{7}{2}$

new line: $m = -2$ (4, -2)
 $y - y_1 = m(x - x_1)$
 $y + 2 = -2(x - 4)$
 $y + 2 = -2x + 8$
 $y = -2x + 6$

b) line perpendicular to $3y = 2x - 3$ and goes through $(4, 6)$

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

new $m_{\perp} = -\frac{3}{2}$

$y = mx + b$
 $6 = -\frac{3}{2}(4) + b$
 $6 = -6 + b$
 $b = 12$

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

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Hwk: pg. 86 - 88
 #12, 18, 24, 26, 34, 35,
 36 - 54 evens

Quiz Tomorrow 2-1 → 2-4

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