

AP Calculus

Chapter 1

Section 1-1

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Lines

$$\frac{x}{14} + \frac{y}{6} = 11$$

$$y = mx + b$$

- Find the y-intercept of the line.

$$y = 66$$

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Lines

$$\frac{x}{4} + \frac{y}{7} = 2$$

$$y = mx + b$$

- Find the slope of the line.

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

$$y = -\frac{7}{4}x + 14$$

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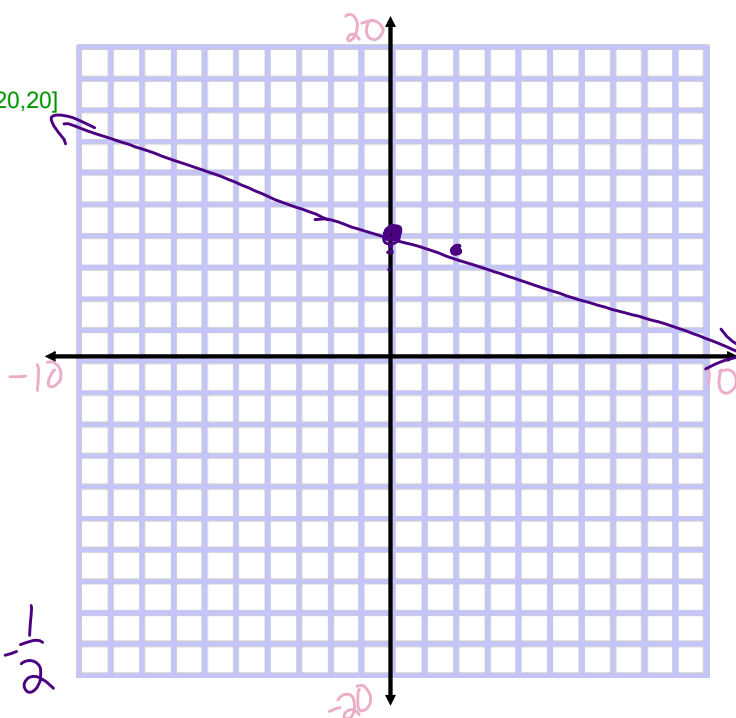
Graph the line.

**Viewing window is [-10,10] by [-20,20]

$$\frac{x}{4} + \frac{y}{2} = 4$$

x	y
0	8
16	0

$$m = \frac{-8}{16} = -\frac{1}{2}$$



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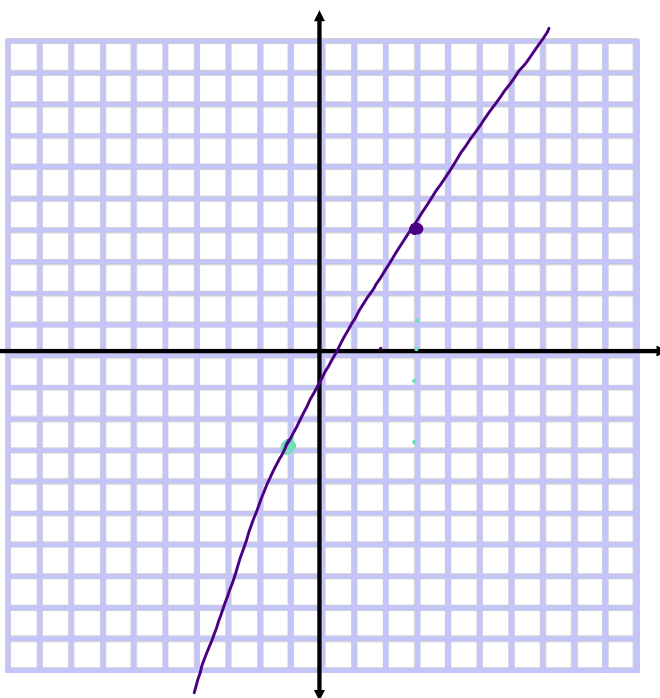
Graph the line.

***Each box is 100 unit²*

$$y = 1.75(x - 30) + 40$$

$$y - 40 = 1.75(x - 30)$$

$$\hookrightarrow \frac{7}{4} = \frac{-7}{-4}$$



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$$L_1: y = 8x - 3 \quad P: (3, 17)$$

Find the slope-intercept equation of the line through P that is parallel to L_1 .

$$y - 17 = 8(x - 3)$$

$$y = 8x - 24 + 17$$

$$y = 8x - 7$$

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$$L_1: y = \underline{3.5x} - 1 \quad P: (1.5, 5)$$

Write an equation of the line through P that is perpendicular to L_1 .

$$\frac{7}{2} \xrightarrow{\perp} -\frac{2}{7}$$

$$Y - 5 = -\frac{2}{7}(x - 1.5)$$

$$Y - 5 = -\frac{1}{3.5}(x - 1.5)$$

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Information from a table

The table of values is given for $f(x) = mx + b$.

- Find m and b .

x	f(x)
3	5
11	-9
-1	12

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{5 - 12}{3 - (-1)} = \frac{-7}{4}$$

$$5 = 3\left(\frac{-7}{4}\right) + b$$

$$b = 5 - 3\left(\frac{-7}{4}\right)$$

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$$A: (3, 3n) \quad B: (5, 8-n)$$

Find n such that the slope of the line between A and B is -2.

$$m = \frac{y_2 - y_1}{x_2 - x_1} \rightarrow -2 = \frac{8-n - 3n}{5-3} \rightarrow -4 = 8-4n$$

$$-1 = 2-n$$

$$n = 3$$

Write an equation for the line.

$$y - 9 = -2(x - 3)$$

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$$A: (-8, k + 3) \quad B: (1/k, 3 - 8k^2)$$

Write an equation for line AB in terms of x , y , and k .

$$y =$$

$$m = \frac{(k+3) - (3-8k^2)}{-8 - 1/k}$$

$$y - (k+3) = \frac{(k+3) - (3-8k^2)}{-8 - 1/k} (x + 8)$$

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Homework

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5 - 37 odd, 40 - 43 all

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