

P-10 For each pair of points (x_1, y_1) and (x_2, y_2) , use the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$ to find the slope of the line passing through the two points.

1. $(1, 3)$ and $(3, 9)$

$$m = \frac{9-3}{3-1} = \frac{6}{2} = 3$$

3. $(-2, 6)$ and $(3, -4)$

$$m = \frac{-4-6}{3-(-2)} = \frac{-10}{5} = -2$$

2. $(1, -1)$ and $(4, 2)$

$$m = \frac{2-(-1)}{4-1} = \frac{3}{3} = 1$$

4. $(2, 6)$ and $(-3, 21)$

$$m = \frac{21-6}{-3-2} = \frac{15}{-5} = -3$$

Find the $y = mx + b$ equation of each line using the given slope and y -intercept.

Slope:

 y -intercept:

Equation:

5. 2 $(0, 1)$

$$y = 2x + 1$$

6. -3 $(0, 4)$

$$y = -3x + 4$$

7. 0 $(0, 3)$

$$y = 3 \quad (\text{or } y = 0x + 3)$$

8. 3 $(0, -1)$

$$y = 3x - 1$$

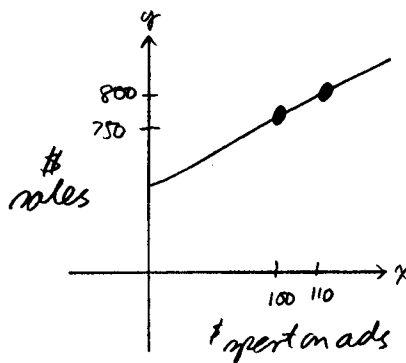
Fred Baddy's Record Store advertises on television. One week, Fred spent one hundred dollars on TV ads and his sales were seven hundred fifty dollars. Another week he spent one hundred ten dollars on the ads and his sales were eight hundred dollars.

9. How much do Fred's weekly sales increase for each one dollar increase in his advertising?

*spend \$10 more to get \$50 more sales
so \$5*

$$\left(\begin{array}{l} (100, 750) \text{ and } (110, 800) \\ m = \frac{800-750}{110-100} = \frac{50}{10} = 5 \end{array} \right)$$

10. Make a sketch showing the relationship between the amount Fred spends on TV ads and the weekly sales of his store.



$$\left(\begin{array}{l} y = 5x + b \\ 750 = 5 \cdot 100 + b \\ 750 = 500 + b \\ 250 = b \end{array} \right)$$

How much could he expect his sales to be if he didn't advertise on TV? (Assume that each dollar spent on TV ads gives the sales amount that you found in Problem 9.)

*If each \$1 spent returns \$5 in sales,
\$100 should result in \$500 in sales.
But his sales were \$750, so \$250 must
not be the result of the TV ads.*