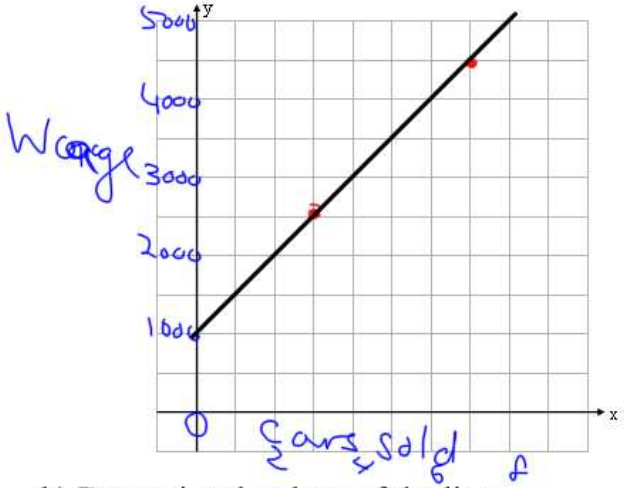
Equation of Line Word Problems

The wage of a car salesman depends on the number of cars they sell.
If a person sells 3 cars they earn $2500.
If they sell 7 cars they earn $4500.

(3, 2500)
(7, 4500)

a) Create a graph using the information in the question.



$$\frac{\text{rise}}{\text{run}} = \frac{\$}{\#\text{ of cars}}$$

b) Determine the slope of the line.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4500 - 2500}{7 - 3} = \frac{2000}{4} = 500 \ \$/\text{car}$$

c) Determine the vertical intercept of the line.

$y = mx + b$

$y = 500x + b$

$2500 = 500(3) + b$

$2500 = 1500 + b$

$b = 1000$

(3, 2500)

If I sell 0 cars I earn $1000

d) Write an equation, in slope-intercept form W = mn + b, that describes the relationship between the number of cars sold **[n]** and the wage the salesperson earns **[W]**.

$W = mn + b$

$W = 500n + 1000$

e) Dale is an ambitious car salesman. He sold 12 cars last month. How much was Dale's wage last month?

$W = 500(12) + 1000$

$W = 6000 + 1000$

$W = \$7000$

f) If Dale's wage last month was $5500, how many cars did he sell?

$W = 500n + 1000$

$5500 = 500n + 1000$

$-1000 \quad -1000$

$\frac{4500}{500} = \frac{500n}{500}$

$9 = n$

Assignment:

Handout 1-6