

**Finding the equation of a line (2 hidden points)****EXAMPLE:**

David, John and Mary go to an amusement park. David went on 4 rides and paid \$22. John went on 7 rides and paid \$31. How much did Mary pay if she went on 11 rides? Let  $x$  represent the number of rides and  $y$  the cost.

1. Find the two points from the sentences

$$\begin{matrix} x_1 & y_1 & & x_2 & y_2 \\ (4, 22) & & & (7, 31) \end{matrix}$$

2- Find the slope

$$a = \frac{y_2 - y_1}{x_2 - x_1} = \frac{31 - 22}{7 - 4} = \frac{9}{3} = 3$$

3- Replace any of the two points in  $y = ax + b$  and find  $b$

$$y = 3x + b \quad (4, 22)$$

$$22 = 3(4) + b$$

$$22 = 12 + b$$

$$10 = b$$

4- Write the equation of the line

$$y = 3x + 10$$

5- Answer question by replacing  $x$  or  $y$

$$\text{now } x = 11, y = ?$$

$$y = 3(11) + 10$$

$$y = 43$$

She spent \$43.