

Understanding Slope & Y-intercepts

10/21

(From Word Problems)

- Write the Equation ($y = mx + b$)
 - Identify Slope & Explain (Key Word: **PER**)
 - Identify Y-intercept & Explain (Initial amount)
- **Answer the question****

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Examples:

For babysitting, Nicole charges a flat fee of \$3 plus \$5 per hour. Write an equation for the cost, y , after x hours of babysitting. What do the slope and the y-intercept represent? How much money will she make if she baby-sits 5 hours?

Equation: $y = 5x + 3$

Slope: 5 Y-int: 3

$$5(5) + 3$$

$$\$28$$

Explanation: Slope: Cost per hour
Y-int: Flat fee

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A plumber charges \$25 for a service call plus \$50 per hour of service. Write an equation in slope-intercept form for the cost, y , after x hours of service. What do the slope and y-intercept represent? What will be the total cost for 8 hours of work? 10 hours of work?

Equation: $y = 50x + 25$

Slope: 50

Y-int: 25

$$50(8) + 25$$

$$\$425$$

$$50(10) + 25$$

$$\$525$$

Explanation: Slope: Cost per hour
Y-int: Cost for Service Call

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A canoe rental service charges a \$20 transportation fee and \$30 dollars an hour to rent a canoe. Write an equation representing the cost, y , of renting a canoe for x hours. What do the slope and y-intercept represent? What is the cost of renting the canoe for 6 hours?

Equation: $y = 30x + 20$

Slope: 30

Y-int: 20

$$30(6) + 20$$

$$\$200$$

Explanation: Slope: Cost per hour
Y-int: transportation fee

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A caterer charges \$120 to cater a party for 15 people and \$200 for 25 people. Assume that the cost, y , is a linear function of the number of x people. Write an equation in slope-intercept form for this function. What does the slope represent? How much would a party for 40 people cost?

y
Cost per person

120	15	$\rightarrow (15, 120)$
200	25	$\rightarrow (25, 200)$

$$\frac{200-120}{25-15} = \frac{80}{10} = \$8 \text{ per person}$$

Cost per person

$$y = 8x + b$$

$$120 = 8(15) + b$$

$$120 = 120 + b$$

$$-120 \quad -120$$

$$b = 0$$

$$y = 8x$$

$$8(40)$$

$$\$320$$

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