

Investigation 2.3 Solving Linear Equations

- Standard form of a line— $y = mx + b$
- x is the **independent variable**
- y is the **dependent variable**
- m is the **slope/pattern in table/constant rate of change**
- $m = \text{rise/run}$
- b is the **y-intercept/starting point**

Part A—Refer to the graph “Sandy’s Canoe Rental Charges” on page 30.

- Explain what the numbers in the equation $c = 0.15t + 2.50$ tell you about the situation.
 0.15 is the _____
 2.50 is the _____
- The manager has 3 questions for Rashida and Serena.
 1. What is the charge for renting a canoe for 30 minutes? _____
 2. A customer is charged \$8.50. How long did he use the canoe? _____
 3. A customer has \$10 to spend. How long can she use a canoe? _____

Part B

Explain how to use a table to answer the manager’s questions above.

1. _____
2. _____
3. _____

Part C

Serena wants to find exact answers, not estimates. For the **second question**, she solves the linear equation $0.15t + 2.50 = 8.50$. She reasons as follows:

- If $0.15t + 2.50 = 8.50$, then $0.15t = 6.00$
- If $0.15t = 6.00$, then $t = 40$.
- I check my answer by substituting **40** for t : $0.15(40) + 2.50 = 8.50$

Serena is/is not correct. How do you know? _____

Part D

For the **third question**, Rashida says “She can use the canoe for 50 minutes if she has \$10.” Serena says there are other possibilities—for example, 45 minutes or 30 minutes. She says you can answer the question by solving the **inequality** $0.15t + 2.50 \leq 10$. This inequality represents the times for which the rental charge is *at most* \$10.

1. Use the table, graph, and the equation $0.15t + 2.50 = 10$ to find all of the times the **inequality is true**.
 - Using a table: _____
 - Using a graph: _____
 - Using the equation: _____
2. Express the solution as an inequality. _____

Part E

River Fun Paddle Boats competes with Sandy’s. The equation $c = 4 + 0.10t$ gives the charge in dollars y for renting a paddle boat for x minutes.

1. A customer at River Fun is charged \$9. How long did the customer use a paddle boat?

2. Suppose you want to spend \$12 at most. How long could you use a paddle boat?

3. What is the charge to rent a paddle boat for 20 minutes?
