

Problem 2.3

Standard form of a line $y=mx + b$

y is dependent variable

x is independent variable

M is slope/pattern in table/constant rate of change

B is the y intercept/starting point

Part A

Use the graph on page 30 to explain how you would use the graph to estimate the answers to the manager's questions.

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 you could 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 $0.15x + 2.50 = 8.50$. She reasons:

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

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* $0.15x + 2.50 \leq 10$. This inequality represents the times for which the rental charge is *at most* \$10.

Thinking with Mathematical Models

1. Use a table, graph and the equation $0.15x + 2.50 = 10$ to find all of the times for which the inequality is true. _____
2. Express the solution as an inequality. _____

Part E

River Fun Paddle Boats competes with Sandy's. The equation $y=4 +0.10x$ gives the charge in dollars y for renting a paddle boat for x minutes.

1. A customer a 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? _____