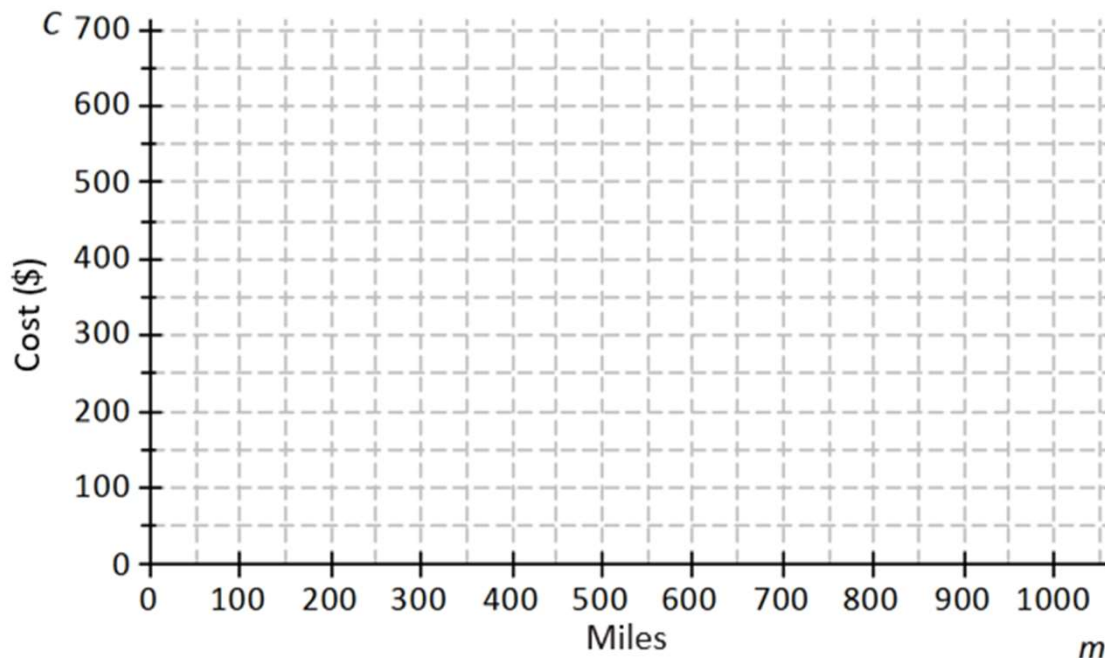


Representations of a Line

1. A truck rental company charges a \$150 rental fee in addition to a charge of \$0.50 per mile driven. Let the total cost of the rental in dollars be C and the number of miles driven be m .

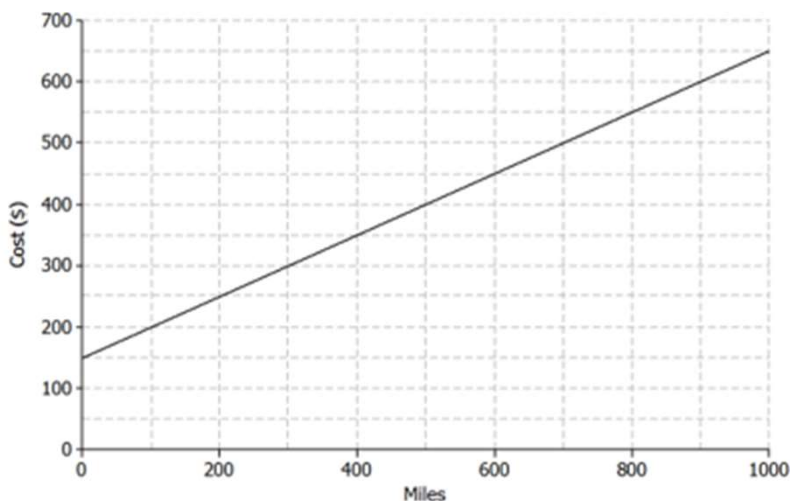


- If the truck is driven 0 miles, what is the cost to the customer? How is this shown on the graph?
- What is the rate of change that relates cost to number of miles driven? Explain what it means within the context of the problem.
- On the axes given above, sketch the graph of the linear function that relates C to m .
- Write the equation of the linear function that models the relationship between number of miles driven and total rental cost.

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1. A truck rental company charges a \$150 rental fee in addition to a charge of \$0.50 per mile driven. Let the total cost of the rental in dollars be C and the number of miles driven be m .



a) If the truck is driven 0 miles, what is the cost to the customer? How is this shown on the graph?

\$150, shown as the point (0, 150). This is the initial value. Some students might say "b." Help them to use the term initial value.

b) What is the rate of change that relates cost to number of miles driven? Explain what it means within the context of the problem.

The rate of change is 0.5. It means that the cost increases by \$0.50 for every mile driven.

c) On the axes given above, sketch the graph of the linear function that relates C to m .

Students can plot the initial value (0, 150) and then use the rate of change to identify additional points as needed. A 1,000-unit increase in m results in a 500-unit increase for C , so another point on the line is (1000, 650).

d) Write the equation of the linear function that models the relationship between number of miles driven and total rental cost.

$$C = 0.5m + 150$$

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