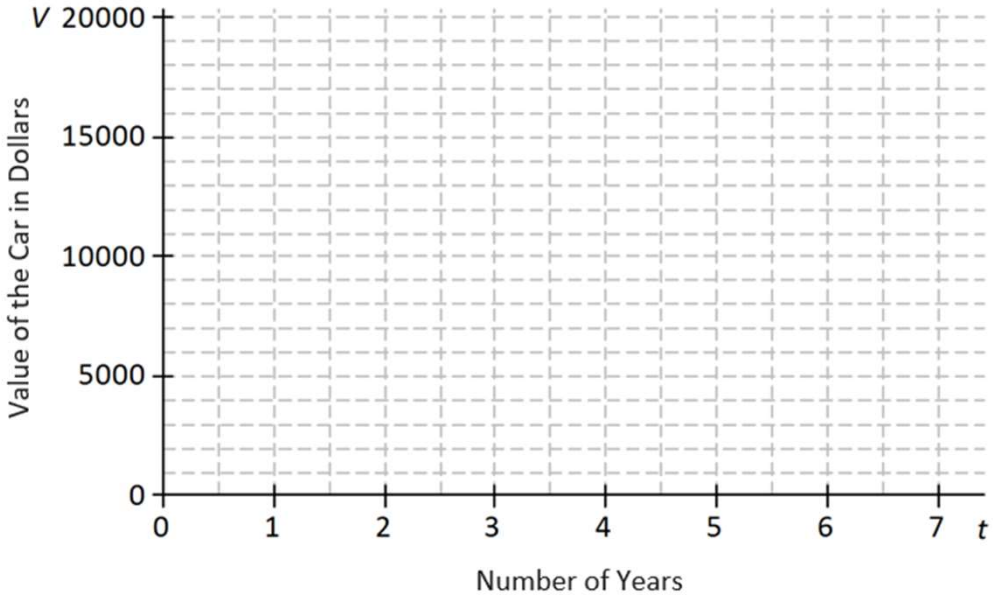
Representations of a Line

1. Jenna bought a used car for $\$18{,}000$. She has been told that the value of the car is likely to decrease by $\$2{,}500$ for each year that she owns the car. Let the value of the car in dollars be V and the number of years Jenna has owned the car be t.



a) What is the value of the car when $t = 0$? Show this point on the graph.

b) What is the rate of change that relates V to t? (Hint: Is it positive or negative? How can you tell?)

c) Find the value of the car when:

$(i)\ t = 1$

$(ii)\ t = 2$

$(iii)\ t = 3$

d) Plot the points for the values you found in c), and draw the line that passes through those points.

e) Write the linear function that models the relationship between the number of years Jenna has owned the car and the value of the car.

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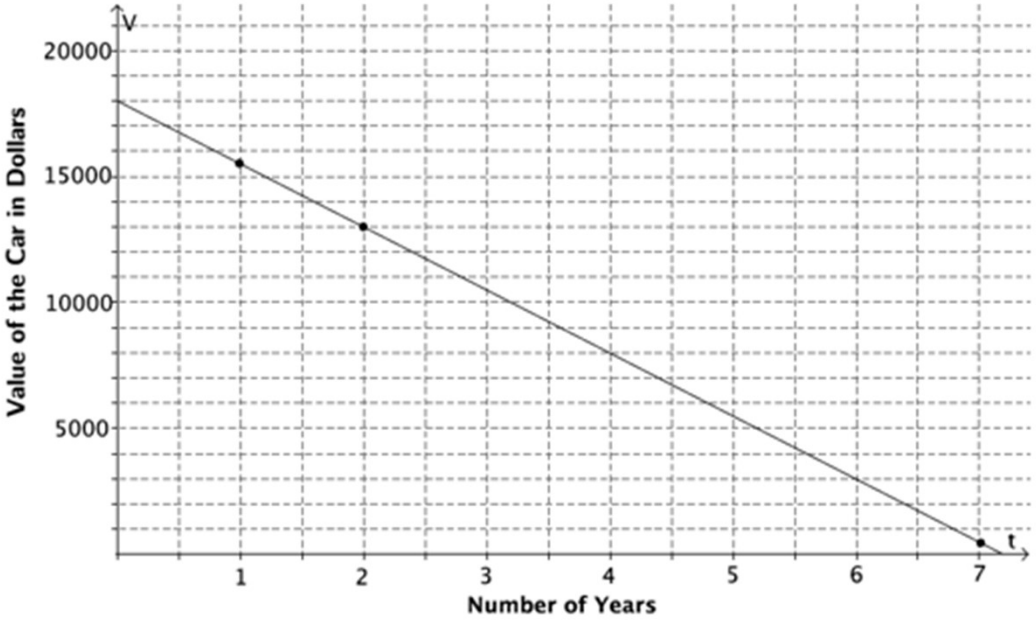

a) What is the value of the car when $t = 0$? Show this point on the graph.

$\$18{,}000$. *Shown by the point* $(0, 18000)$

b) What is the rate of change that relates V to t? (Hint: Is it positive or negative? How can you tell?)

$-2{,}500$. *The rate of change is negative because the value of the car is decreasing.*

c) Find the value of the car when:

$(i)\ t = 1$ $\quad \$18000 - \$2500 = \$15500$

$(ii)\ t = 2$ $\quad \$18000 - 2(\$2500) = \$13000$

$(iii)\ t = 3$ $\quad \$18000 - 7(\$2500) = \$500$

d) Plot the points for the values you found in c), and draw the line that passes through those points.

See the graph above.

e) Write the linear function that models the relationship between the number of years Jenna has owned the car and the value of the car.

$V = 18000 - 2500t$ *or* $V = -2500t + 18000$