1 *Suppose that f is a linear function such that $f(0) = -2$ and $f(1) = -5$.*

a *What is the slope of the graph of this function? (Show what numerical calculation you make.)*

Since $(0, -2)$ and $(1, -5)$ are on the graph, the slope is

$$\frac{(-5) - (-2)}{(1) - (0)} = \frac{-3}{1} = -3.$$

b **Extra credit:** *Write down a formula for this function.*

Since the graph's slope is -3 and its vertical intercetp is $(0, -2)$, the function is

$$f(x) = -3x - 2.$$

2 *The cost (in dollars) of renting a moving truck for a day is given as a function of the distance driven (in miles) by*

$$C(x) = 0.25x + 35.$$

a *Suppose that you want the cost to be no more than \$100. What is the maximum distance that you can drive?*

The cost must be less than or equal to \$100; that is, $C(x) \leq 100$:

$$\begin{aligned} 0.25x + 35 &\leq 100; \\ 0.25x &\leq 65; \\ x &\leq 260. \end{aligned}$$

Therefore, the maximum distance that I can drive is 260 **miles**.

b **Extra credit:** *How might one describe (in ordinary English) the cost of renting the truck for the day?*

It costs \$35 plus 25¢ per mile.