Exercise 75

A cell phone company offers two plans for minutes.

- Plan A: \$20 per month and \$1 for every one hundred texts

- Plan B: \$50 per month with free unlimited texts

How many texts would you need to send per month for plan B to save you money?

Solution

The cost in Plan A is

$$C_A(x, m) = 20m + \frac{1}{100}x,$$

and the cost in Plan B is

$$C_B(x, m) = 50m,$$

where x is the number of texts sent and m is the number of months the plan is bought for. Find where Plan A is more expensive than Plan B.

$$C_A(x, d) > C_B(x, d)$$

$$20m + 0.01x > 50m$$

$$0.01x > 30m$$

$$x > 3000m$$

This inequality says that if more than $3000m$ texts are sent during the time the plan is bought for, it's best to get Plan B. Divide both sides by m to get the number of texts sent per month.

$$\frac{x}{m} > 3000$$

Therefore, if the number of texts sent per month is greater than 3000, it's best to get Plan B.