

Exercise 4

Sonya is currently 10 miles from home and is walking farther away at 2 miles per hour. Write an equation for her distance from home t hours from now.

Solution

Since Sonya is walking at a constant speed, the formula for her distance from home is a linear function.

$$d(t) = mt + b \tag{1}$$

Initially, her distance is 10 miles.

$$10 = m(0) + b = b \quad \rightarrow \quad b = 10$$

m is the slope, or the rate at which Sonya's distance from home increases.

$$m = 2$$

Therefore, the equation for her distance (in miles) is

$$d(t) = 2t + 10,$$

where t is in hours.