

Applying Characteristics to Linear Functions Tasks

Name: Key

Scenario 1: A fishing lake was stocked with a certain amount of bass and the bass population decreases every year. The population of bass in the lake after x years is represented by the function $y = 300 - 25x$.

a. What is the x-intercept and y-intercept? Interpret in terms of the scenario.

x: # of years
y: # of bass remaining

x-int ($y=0$)
 $0 = 300 - 25x$
 $25x = 300$
 $x = 12$
 $(12, 0)$
It takes 12 years for the lake to have no more bass.

y-int ($x=0$)
 $y = 300 - 25(0)$
 $y = 300$
 $(0, 300)$
The lake started with 300 bass.

b. What is the domain of the function?

$0 \leq x \leq 12$ years

c. What is the range of the function?

$0 \leq y \leq 300$ bass

d. What is the slope of the function? Explain what the slope means in terms of the problem scenario.

Slope: -25 The lake loses 25 bass every year.

Scenario 2: Alex's goal is to sell \$100 worth of tickets to the school play. The tickets are \$4 for students and \$10 for adults. This scenario is represented by $4x + 10y = 100$.

a. What is the x-intercept and y-intercept? Interpret in terms of the scenario.

x: # of Student tickets
y: # of adult tickets

x-int ($y=0$)
 $4x + 10(0) = 100$
 $4x = 100$
 $x = 25$
 $(25, 0)$
If 25 student tickets are sold, no adult tickets have to be sold to reach the goal of \$100.

y-int ($x=0$)
 $4(0) + 10y = 100$
 $10y = 100$
 $y = 10$
 $(0, 10)$
If 10 adult tickets are sold, no student tickets have to be sold to reach the goal of \$100.

b. What is the domain of the function?

$0 \leq x \leq 25$ student tickets

c. What is the range of the function?

$0 \leq y \leq 10$ adult tickets