Determining the Meaning of Intercepts

Name:

Date:

Vocabulary Review:

In your own words, define each of the following vocabulary terms.

- Rate of Change
- Slope
- y-intercept
- x-intercept
- Linear Function
- Function
Apply New Learning:

1. Maria has a cell phone plan that uses the equation \( y = 0.55x + 14 \), where \( y \) represents the base plan cost and \( x \) represents the number of minutes used, to determine the amount of her cell phone bill each month, before taxes and fees.

   What is the base cost of the plan (\( y \)-intercept) before minutes are used?

   How many minutes used does the base cost represent (\( x \)-intercept), before additional minutes are used?

2. Subkhir has a car loan, and he uses the equation \( y = 7,500 - 250x \), where \( x \) represents the number of months that he has been paying the loan and \( y \) represents the remaining balance on the loan, to determine his remaining loan balance.

   What was the initial amount of Subkhir's car loan (\( y \)-intercept)?

   In how many months will the remaining balance be $0 (\( x \)-intercept)?
3. Nimitha buys fruit at her local farmer’s market. This Saturday, oranges cost $2 per pound and cherries cost $3 per pound. She has $12 to spend on fruit. Nimitha can use the equation \(2x + 3y = 12\), where \(x\) represents the number of pounds of oranges and \(y\) represents the number of pounds of cherries, to determine how many pounds of each fruit she may purchase.

If Nimitha buys only oranges, how many pounds can she buy (\(x\)-intercept)?

If she buys only cherries, how many pounds can she buy (\(y\)-intercept)?