

Algebra 1 ECA Remediation

Lesson 14 Solving Word Problems Involving Linear Equations

Linear models for things that add up to a total

$$Ax + By = C$$

Linear models for things that has an initial value and something that repeats

$$y = mx + b$$

Consider this situation for questions #1 & #2.

A teacher has \$31 to buy apples and bananas for her 5th grade class. The apples cost \$2.50 per pound and the bananas cost \$3.00 per pound.

1. Write an equation that can be used to represent the number of pounds of apples (a) and the number of pounds of bananas (b) that the teacher can buy for \$31?

Apples	2.50	a
Bananas	3.00	b
Total	31.00	

$$2.50a + 3.00b = 31$$
$$Ax + By = C$$

2. If the teacher buys 4 pounds of apples, how many pounds of bananas can she buy?

$$\begin{array}{r} 2.50(4) + 3.00(b) = 31 \\ 10 + 3b = 31 \\ \underline{-10} \quad \underline{-10} \\ 3b = 21 \end{array}$$
$$\begin{array}{r} 3b = 21 \\ \underline{3} \quad \underline{3} \\ b = 7.00 \end{array}$$

Consider this situation for questions #3 & #4.

For a camping trip, the cost to rent a canoe is \$20 plus \$4.50 per hour.

3. Write an equation that can be used to represent the total cost (c) of renting a canoe for (h) hours?

$$b \rightarrow \$20 = \text{fee}$$
$$m \rightarrow \$4.50 = \text{hourly}$$
$$C = 4.50h + 20$$
$$y = mx + b$$

4. How much would it cost to rent a canoe for 6 hours?

$$h = 6 \text{ hrs}$$
$$C = 4.50(6) + 20$$
$$C = 27 + 20$$
$$C = \$47.00$$