

Systems of Equations: Lesson 6

Word Problems 2: Notes

Name: Answer Key



airplane speed wind speed

actual speed = air speed - wind speed

airplane speed wind speed

actual speed = air speed + wind speed

A plane travels from one city to another in the same direction as the wind current, and its actual flying speed is 530 mph. It turns around and comes back against the wind, and its flying speed is 370 mph. What is the airplane's speed and the wind speed?

$$A + W = \underline{530} \qquad \underline{450} + W = \underline{530}$$

$$A - W = \underline{370} \qquad W = \underline{80} \text{ mph}$$

$$2A = \underline{900}$$

$$A = \underline{450} \text{ mph}$$

Break-even point: company's expenses = its income

I make paracord bracelets, and materials cost \$3.50 each. I sell them for \$8 each. I spent \$1,872 in advertising. What is my break-even point?

Expenses: materials and advertising

$$\underline{3.50b} + \underline{1872}$$

Income: 8b

$$\underline{3.50b} + \underline{1872} = \underline{8b}$$

$$b = \underline{416} \text{ bracelets}$$

I invested \$1,500 into two accounts, one earning 5% interest and one earning 4%. After a year, I earned \$69.50 in interest. How much money did I put in each account?

Amount in 5%: x

Amount in 4%: y

$$x + y = 1500 \rightarrow x = 1500 - y$$

$$\underline{5\% \cdot x} + \underline{4\% \cdot y} = 69.50$$

$$\underline{.05x} + \underline{.04y} = 69.50$$

$$.05(1500 - y) + .04 \underline{y} = 69.50$$

$$\underline{75} - .05y + .04 \underline{y} = 69.50$$

$$\underline{-.01} y = -5.5$$

$$y = \underline{\$550} \text{ (4\%)}$$

$$x = \underline{\$950} \text{ (5\%)}$$