

Study Pod - Word Problems

Chapter 14 Review

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For each problem, write a system of equations and answer the question. Show all work.

- 1) Scott and Gabriella are selling pies for a school fundraiser. Customers can buy cherry pies and pumpkin pies. Scott sold 14 cherry pies and 8 pumpkin pies for a total of \$176. Gabriella sold 3 cherry pies and 11 pumpkin pies for a total of \$177. What is the cost each of one cherry pie and one pumpkin pie?

x = cost of cherry pies
 y = cost of pumpkin pies

$$\begin{aligned} 14x + 8y &= 176 \\ 3x + 11y &= 177 \end{aligned}$$

$$\begin{aligned} -42x - 24y &= -528 \\ 42x + 154y &= 2428 \\ \hline 130y &= 1950 \\ y &= 15 \end{aligned}$$

$$\begin{aligned} 3x + 11(15) &= 177 \\ 3x + 165 &= 177 \\ 3x &= 12 \\ x &= 4 \end{aligned}$$

Cherry pies cost \$4 and pumpkin pies cost \$15

- 2) Eduardo and John each improved their yards by planting daylilies and shrubs. They bought their supplies from the same store. Eduardo spent \$72 on 4 daylilies and 4 shrubs. John spent \$153 on 14 daylilies and 3 shrubs. What is the cost of one daylily and the cost of one shrub?

x = cost of daylily
 y = cost of shrub

$$\begin{aligned} 4x + 4y &= 72 \\ 14x + 3y &= 153 \end{aligned}$$

$$\begin{aligned} -12x - 12y &= -216 \\ 56x + 12y &= 612 \\ \hline 44x &= 396 \\ x &= 9 \end{aligned}$$

$$\begin{aligned} 4(9) + 4y &= 72 \\ 36 + 4y &= 72 \\ 4y &= 36 \\ y &= 9 \end{aligned}$$

Daylilies cost \$9 and shrubs cost \$9.

- 3) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 12 vans and 6 buses with 540 students. High School B rented and filled 11 vans and 5 buses with 467 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

x = # students van carry
 y = # students bus carry

$$\begin{aligned} 12x + 6y &= 540 \\ 11x + 5y &= 467 \end{aligned}$$

$$\begin{aligned} 60x + 30y &= 2700 \\ -66x - 30y &= -2802 \\ \hline -6x &= -102 \\ x &= 17 \end{aligned}$$

$$\begin{aligned} 11(17) + 5y &= 467 \\ 187 + 5y &= 467 \\ 5y &= 280 \\ y &= 56 \end{aligned}$$

Vans can carry 17 students and buses can carry 56 students

- 4) The school that Jack goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 adult tickets and 6 child tickets for a total of \$75. The school took in \$64 on the second day by selling 14 adult tickets and 2 child tickets. Find the price of an adult ticket and the price of a child ticket.

x = price of adult ticket
 y = price of child ticket

$$\begin{aligned} 3x + 6y &= 75 \\ 14x + 2y &= 64 \end{aligned}$$

$$\begin{aligned} 3x + 6y &= 75 \\ -42x - 6y &= -192 \\ \hline -39x &= -117 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} 3(3) + 6y &= 75 \\ 9 + 6y &= 75 \\ 6y &= 66 \\ y &= 11 \end{aligned}$$

Adult tickets cost \$3 and child tickets cost \$11

- 5) Find the value of two numbers if their sum is 20 and their difference is 4.

$$x + y = 20$$

$$x - y = 4$$

$$2x = 24$$

$$x = 12$$

$$12 + y = 20$$

$$y = 8$$

The two numbers are 12 and 8

- 6) Castel spent \$460 on books. Math books cost \$50 and science books cost \$70. If he bought a total of 8 then how many of each kind did he buy?

$x = \# \text{ of Math books}$
 $y = \# \text{ of Science books}$

$50x + 70y = 460$
 $x + y = 8$
 $x = 8 - y$

$50(8 - y) + 70y = 460$
 $400 - 50y + 70y = 460$
 $20y = 60$
 $y = 3$

$x + 3 = 8$
 $x = 5$

Castel bought 5 math books and 3 science books

- 7) Elisa's Printing Inc. has two type of printing presses: Model A and Model B. Model A can print 40 books per day and Model B can print 30 books per day. Altogether Elisa has 19 printing presses. If she can print 660 books in a day then how many of each press does she have?

$x = \# \text{ of Model A}$
 $y = \# \text{ of Model B}$

$40x + 30y = 660$
 $x + y = 19$
 $x = 19 - y$

$40(19 - y) + 30y = 660$
 $760 - 40y + 30y = 660$
 $760 - 10y = 660$
 $100 = 10y$
 $10 = y$

$x + 10 = 19$
 $x = 9$

Elisa has 9 Model A and 10 Model B presses

- 8) All 250 students in the Math Club went on a field trip. Some students rode in vans which hold 10 students each and some students rode in buses which hold 50 students each. How many of each type of vehicle did they use if there were 9 vehicles total?

$x = \# \text{ of vans}$
 $y = \# \text{ of buses}$

$10x + 50y = 250$
 $x + y = 9$
 $x = 9 - y$

$10(9 - y) + 50y = 250$
 $90 - 10y + 50y = 250$
 $40y = 160$
 $y = 4$

$x = 9 - 4$
 $x = 5$

They took 5 vans and 4 buses

- 9) A farmhouse shelters 12 animals. Some are horses and some are chickens. Altogether there are 32 legs. How many of each animal are there?

$x = \# \text{ of horses}$
 $y = \# \text{ of chickens}$

$x + y = 12$
 $4x + 2y = 32$
 $y = 12 - x$

$4x + 2(12 - x) = 32$
 $4x + 24 - 2x = 32$
 $2x = 8$
 $x = 4$

$y = 12 - 4$
 $y = 8$

There are 4 horses and 8 chickens

- 10) Jennifer's Custom Kitchen Supplies sells handmade forks and spoons. It costs the store \$2 to buy the supplies to make a fork and \$1 to buy the supplies to make a spoon. The store sells forks for \$4 and spoons for \$5. Last April Jennifer's Custom Kitchen Supplies spent \$30 on materials for forks and spoons. They sold the finished products for a total of \$120. How many forks and how many spoons did they make last April?

$x = \# \text{ of forks}$
 $y = \# \text{ of spoons}$

$2x + y = 30$
 $4x + 5y = 120$
 $y = 30 - 2x$

$4x + 5(30 - 2x) = 120$
 $4x + 150 - 10x = 120$
 $-6x + 150 = 120$
 $30 = 6x$
 $5 = x$

$y = 30 - 2(5)$
 $y = 30 - 10$
 $y = 20$

The made 5 forks and 20 spoons