

Systems of Equations: Lesson 5

Word Problems 1: Worksheet 1

Name: Answer Key!



I have a mixture of red and green candies. I have 46 candies total. The number of reds is two times as many plus one of greens. (Be careful with this one!) How many of each color do I have?

$$\begin{aligned}
 r + g &= 46 \\
 r &= 2g + 1
 \end{aligned}
 \rightarrow
 \begin{aligned}
 r &= 2(15) + 1 \\
 r &= 30 + 1 \\
 r &= 31
 \end{aligned}$$

$$\begin{aligned}
 2g + 1 + g &= 46 \\
 3g + 1 &= 46 \\
 3g &= 45 \\
 g &= 15
 \end{aligned}$$

There are 31 red & 15 green candies

There are 22 coins on the table, nickels and dimes. The value of the money is \$1.95. How many nickels are on the table?

$$\begin{aligned}
 n + d &= 22 \rightarrow d = 22 - n \\
 .05n + .10d &= 1.95 \\
 .05n + .10(22 - n) &= 1.95 \\
 .05n + 2.2 - .10n &= 1.95 \\
 \underline{.05n + 2.2} &= 1.95 \\
 \underline{- .05n \quad - 2.2} & \quad \underline{2.2} \\
 \underline{-.05n} &= \underline{-.25} \quad n = 5
 \end{aligned}$$

$$\begin{aligned}
 d &= 22 - n \\
 d &= 22 - 5 \\
 d &= 17
 \end{aligned}$$

17 dimes & 5 nickels

I bought 9 total pens and pencils. Each pencil cost \$.75, and each pen cost \$1.25. I spent \$9.75 total. How many of each did I buy?

$$\begin{aligned}
 x + y &= 9 \rightarrow y = 9 - x \\
 1.25x + .75y &= 9.75 \\
 1.25x + .75(9 - x) &= 9.75 \\
 \underline{1.25x + 6.75} &= 9.75 \\
 \underline{-.75x} & \quad \underline{6.75} \\
 \underline{.75x} &= \underline{3} \quad x = 4
 \end{aligned}$$

$$\begin{aligned}
 y &= 9 - x \\
 y &= 9 - 4 \\
 y &= 5
 \end{aligned}$$

4 pens & 5 pencils

I bought hamburgers and sandwiches for a party. There were 55 in total, and I bought 4 times as many hamburgers as sandwiches. How many of each did I buy?

$$\begin{aligned}h + s &= 55 \\4s &= h \\4s + s &= 55 \\5s &= 55 \\s &= 11 \\4s &= h \\h &= 44\end{aligned}$$

note: 4 times as many hamburgers as sandwiches is not $4h = s$ because then you'd have more sandwiches.

11 sandwiches and 44 hamburgers