



Problem of the Week

Problem B and Solution

I Love Dogs

Problem

Kelsie recently started earning money by walking dogs in her neighbourhood. She earns \$8.00 each time she walks a dog. Kelsie walks two dogs per day for the month of November. Kelsie uses her money to support an animal shelter. Starting on December 1, she donates \$18.00 on odd numbered days and \$22.00 on even numbered days. Will Kelsie have donated all of her earned money before Christmas Day, December 25th?

Solution

During the 30 days of November, Kelsie earned $2 \times \$8 \times 30 = \480 .

Starting December 1st, she will donate \$18 for each of the odd numbered days from December 1 to December 24, 12 odd numbered days in total. In that same time period, she will donate \$22 on each of the 12 even numbered days.

We will determine the final answer using two different methods.

Method 1:

Since there were 12 odd numbered days and she donated \$18 on each of these days, she donated a total of $12 \times \$18 = \216 on the odd numbered days.

Since there were 12 even numbered days and she donated \$22 on each of these days, she donated a total of $12 \times \$22 = \264 on the even numbered days.

In total, on the first 24 days of December she would donate $\$216 + \$264 = \$480$. Kelsie will have donated all of her earnings before Christmas Day on December 25.

Method 2:

Since there is an equal number of odd numbered days and even numbered days in the first 24 days of December, we can determine the total that she donated every 2 days and multiply the result by 12.

Kelsie donates \$18 on an odd numbered day and \$22 on an even numbered day. So each 2 day combination she donates $\$18 + \$22 = \$40$. There are 12 pairs of two-day combinations so she donates a total of $12 \times \$40 = \480 over the first 24 days of December.

Kelsie will have donated all of her earnings before Christmas Day on December 25.

