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.