

## Maths Problem Solving Week 5

This week's problems are original. Devised by your very own NLPS mathematicians.

Good Luck

## Senior – Poppies and Badges

**Here is the question:** On ANZAC day, Newport Lakes PS students bought a total of 34 poppies and badges for \$205. Poppies cost \$4 each and badges cost \$7 each. How many badges were purchased?

So, using the assumption method, I worked out that 34 badges would cost \$238. That is \$33 more than what was spent. I need to find a way to save \$33.

Poppies only cost \$4 each. That is \$3 less per poppy than for a badge. So every time I buy a poppy instead of a badge, I save \$3. I need to save \$33, so I will need to buy 11 poppies instead of badges.

$$34 - 11 = 23$$

The children at NLPS bought 23 badges at \$7 each (\$161) and 11 poppies at \$4 each (\$44).

## Middle – Pizza Party

Josie's family were having a pizza party. All the pizzas were the same size.

Josie ate  $\frac{4}{5}$  of a pizza.

Daphne ate  $\frac{2}{3}$  of a pizza then ate another  $\frac{2}{5}$  of a pizza.

Michael ate  $\frac{4}{5}$  of a pizza then ate another  $\frac{1}{3}$  of a pizza.

Helen ate  $\frac{7}{10}$  of a pizza and then ate  $\frac{2}{5}$  more.

First of all, I worked out how much pizza each person ate. I noticed that lots of different types of fractions were used in the question – fifths, thirds and tenths. I found a common denominator for them all and used this to add and then compare the fractions.

Josie:  $\frac{4}{5} \times \frac{6}{6} = \frac{24}{30}$  TOTAL  $\frac{24}{30}$

Daphne:  $\frac{2}{3} \times \frac{10}{10} = \frac{20}{30}$  AND  $\frac{2}{5} \times \frac{6}{6} = \frac{12}{30}$  TOTAL  $\frac{32}{30}$

Michael:  $\frac{4}{5} \times \frac{6}{6} = \frac{24}{30}$  AND  $\frac{1}{3} \times \frac{10}{10} = \frac{10}{30}$  TOTAL  $\frac{34}{30}$

Helen:  $\frac{7}{10} \times \frac{3}{3} = \frac{21}{30}$  AND  $\frac{2}{5} \times \frac{6}{6} = \frac{12}{30}$  TOTAL  $\frac{33}{30}$

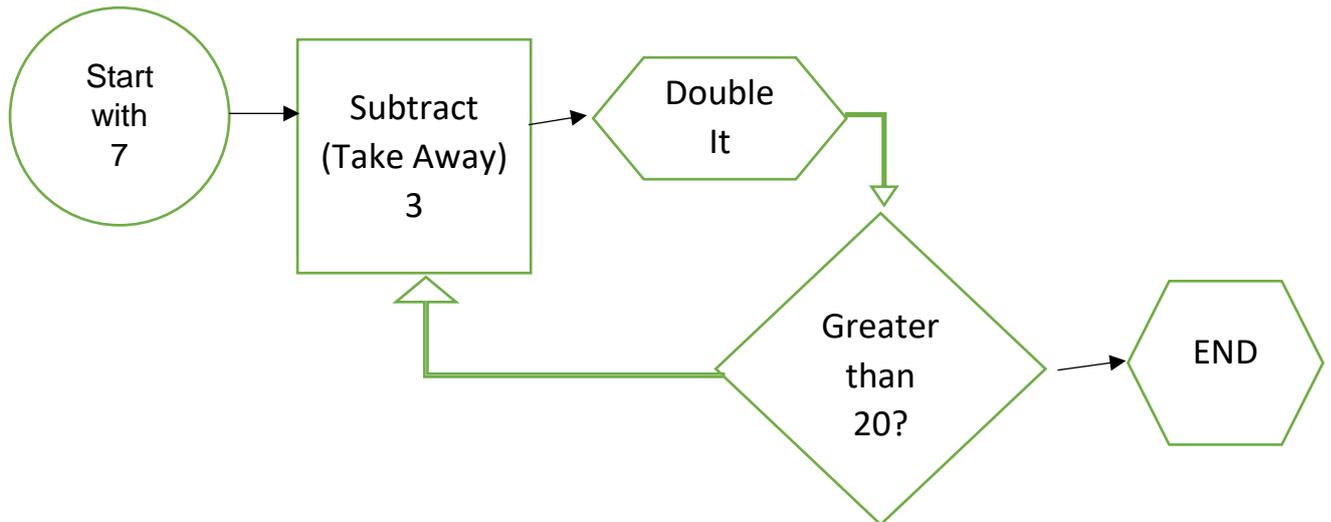
Qa. Michael ate the most pizza

Qb. Josie ate the least pizza

Qc.  $\frac{24}{30} + \frac{32}{30} + \frac{34}{30} + \frac{33}{30} = \frac{123}{30} = 4 \text{ and } \frac{3}{30} \text{ or } 4 \text{ and } \frac{1}{10}$

## Junior – Number Crunching Machine

Question: Elsie follows the instructions on this number crunching machine. What number does she end up with?



Elsie starts with 7. This is what she does:

$7 - 3 = 4$        $4 \times 2 = 8$  (This is less than 20 so she goes back to subtract 3.)

$8 - 3 = 5$        $5 \times 2 = 10$  (This is less than 20 so she goes back to subtract 3.)

$10 - 3 = 7$        $7 \times 2 = 14$  (This is less than 20 so she goes back to subtract 3.)

$14 - 3 = 11$        $11 \times 2 = 22$  (This is more than 20 so she goes to END)

Elsie's final number is 22.