

**Problem of the Week: Week 2 (Summer 1): Year 8: Number: Standard form, decimal to fraction conversion**

- Interpret and compare numbers in standard form, where  $n$  is a positive or negative integer or zero
- Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and  $7/2$  or 0.375 and  $3/8$ )

**Problem 1:**

- An average adult has a resting heart rate of between 60 and 100 beats per minute (bpm). How many beats will an adult's heart have made in a year? You could explore for 60bpm, 70bpm, 80bpm, etc. Write your answers in standard form.
- Choose a value between 60 and 100bpm, in 10, 20, 30, 40 years how many beats will the heart have made? Record answers in standard form.
- A tortoise has a heart rate of 10bpm  
A hummingbird has a heart rate of 1260bpm  
How many beats will their hearts make in one year?

**Problem 2**

Match the equivalent values

$0.04 \div 0.1$	0.0004	$4 \times 10^{-1}$	<u><math>0.04 \div 100</math></u>
40	$4 \times 10^{-4}$	0.4	4000
$400 \times 10^{-3}$	$40 \div 0.01$	$0.4 \times 10^2$	$4 \times 10^1$
$0.04 \times 10^{-2}$	$0.04 \times 10^5$	$4 \times 10^3$	$4000 \div 100$

**Problem 3:****Terminating or Not**

A terminating decimal is a decimal which has a finite number of decimal places, such as 0.25, 0.047 or 0.7734

Look at the fractions below

$$\frac{2}{3} \quad \frac{4}{5} \quad \frac{17}{50} \quad \frac{3}{16} \quad \frac{7}{12} \quad \frac{5}{8} \quad \frac{11}{14} \quad \frac{8}{15}$$

Which ones do you think can be written as a terminating decimal?

Test your predictions by converting the fractions to decimals.

Choose some fractions, convert them to decimals. Sort into terminating and recurring decimals. What do the terminating decimals have in common?

Can you explain a method you could use to identify fractions which can be written as terminating decimals?

<https://nrich.maths.org/14531>