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Decimal Fraction Equivalents: Sevenths

Aim: to calculate the decimal fraction equivalents for simple fractions

Calculate the decimal fraction equivalent for $\frac{1}{7}$ using the formal method.

$$7 \overline{) 1.000000000000}$$

Write the answer as a recurring fraction, putting dots over the first and last digit in the set of digits that recur.

$$\frac{1}{7} =$$

Repeat this to find the decimal equivalent of $\frac{2}{7}$ using the formal method.

$$7 \overline{) 2.000000000000}$$

Write the answer as a recurring fraction, putting dots over the first and last digit in the set of digits that recur.

$$\frac{2}{7} =$$

Repeat this process for $\frac{3}{7}$, $\frac{4}{7}$, $\frac{5}{7}$ and $\frac{6}{7}$.

$$\frac{3}{7} =$$

$$\frac{4}{7} =$$

$$\frac{5}{7} =$$

$$\frac{6}{7} =$$

Can you spot any patterns in these numbers?

Decimal Fraction Equivalents: Sevenths

Aim: to calculate the decimal fraction equivalents for simple fractions

Calculate the decimal fraction equivalent for $\frac{1}{7}$ using the formal method.

$$\begin{array}{r} 0.142857142857 \\ 7 \overline{) 1.000000000000} \end{array}$$

Write the answer as a recurring fraction, putting dots over the first and last digit in the set of digits that recur.

$$\frac{1}{7} = 0.\dot{1}4285\dot{7}$$

Repeat this to find the decimal equivalent of $\frac{2}{7}$ using the formal method.

$$\begin{array}{r} 0.285714285714 \\ 7 \overline{) 2.000000000000} \end{array}$$

Write the answer as a recurring fraction, putting dots over the first and last digit in the set of digits that recur.

$$\frac{2}{7} = 0.\dot{2}8571\dot{4}$$

Repeat this process for $\frac{3}{7}$, $\frac{4}{7}$, $\frac{5}{7}$ and $\frac{6}{7}$.

$$\frac{3}{7} = 0.\dot{4}2857\dot{1}$$

$$\frac{4}{7} = 0.\dot{5}7142\dot{8}$$

$$\frac{5}{7} = 0.\dot{7}1428\dot{5}$$

$$\frac{6}{7} = 0.\dot{8}5714\dot{2}$$

Can you spot any patterns in these numbers?

1. The same 6 digits are used each time – 1, 2, 4, 5, 7, 8
2. The digits that are not used are 0, 3, 6, 9.
3. The digits are always in the same order – 142857
4. Each number starts with one of the 6 digits, using the next largest each time.
5. The first number 0.142857 can be remembered as double 7 (14), double 14 (28) and nearly double 28 (57 – because the 6 isn't used), so its 142857.