



Top Tips!

Inequalities: Remember



Terminating decimals:

$$\frac{1}{8} = 0.125$$

Recurring decimals:

$$\frac{1}{6} = 0.166666 \dots = 0.1\dot{6}$$

Starter

Complete the following table:

Fraction	Decimal	Percentage
$\frac{73}{100}$	0.73	73%
$\frac{2}{5}$	0.4	40%
$\frac{1}{50}$	0.02	2%
$\frac{63}{100}$	0.63	63%
$\frac{4}{5}$	0.8	80%
$\frac{3}{25}$	0.12	12%
$\frac{39}{100}$	0.39	39%
$\frac{3}{5}$	0.6	60%
$\frac{39}{100}$	0.39	39%
$\frac{3}{5}$	0.6	60%
$\frac{3}{100}$	0.03	3%
$\frac{100}{100}$	1.0	100%
$\frac{4}{10}$	0.4	40%
$\frac{2}{5}$	0.4	40%
$\frac{1}{20}$	0.05	5%
$\frac{3}{50}$	0.06	6%
$\frac{9}{100}$	0.09	9%

Skills:

Write the following fractions as decimals, then state if they are recurring/terminating decimals.

(a) $\frac{5}{6} = 0.8\dot{3}$ **Recurring**

(b) $\frac{7}{8} = 0.875$ **Terminating**

Examination Question: 2016 January Link Methods U1 Higher Q8

Bethan is given the following information:

The universal set, ϵ , is the set of all fractions.

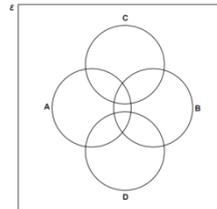
Set **A** contains all the fractions that can be written as **recurring decimals**.

Set **B** contains all the fractions that can be written as **terminating decimals**.

Set **C** contains any fractions that are equivalent to 40%.

Set **D** contains any fractions that are greater than 60%.

Bethan draws a Venn diagram to represent this information. Her Venn diagram is shown below.



(a) (i) Explain why set **C** and set **D** have no intersection in the Venn diagram. [1]
Can never be 40% and > 60%.

(ii) Sets with no entries are known as empty sets or null sets. Shade the region that represents $A \cap B$ on Bethan's Venn diagram. Explain how you know that $A \cap B$ will be a null set. [2]

Correct region shaded.

Decimals are either recurring or terminating, cannot be both.

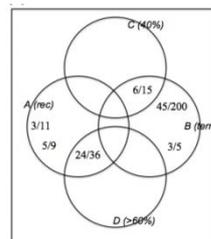
(b) The following fractions are to be placed in Bethan's Venn diagram.

$$\frac{3}{5} \quad \frac{24}{36} \quad \frac{6}{15} \quad \frac{3}{11} \quad \frac{5}{9} \quad \frac{45}{200}$$

(i) Complete the table below by writing each of these fractions as a decimal. The first two have already been done for you. [4]

Fraction	Decimal
$\frac{3}{5}$	0.6
$\frac{24}{36}$	0.666...
$\frac{6}{15}$	0.4
$\frac{3}{11}$	0.2727(27)...
$\frac{5}{9}$	0.55(5...)
$\frac{45}{200}$	0.225

(ii) Place each of the 6 **fractions** in the appropriate position in the venn diagram. [3]



(iii) List the fractions that are in set **A'** in the Venn diagram. [1]

$$\frac{6}{15} \quad \frac{45}{200} \quad \frac{3}{5}$$

(iv) A fraction is selected at random from this list of 6 fractions.

Find the probability that the fraction selected is in the region $A \cup B$. [1] $\frac{6}{6} = 1$