Fractions and decimals

- Using division to convert fractions to decimals
- Understanding that a recurring decimal is a fraction
- Ordering fractions

Keywords

You should know

explanation 1 online

1 Write each decimal as a fraction in its lowest terms.

a 0.8 **b** 0.45 **c** 0.72 **d** 0.98

e 0.125 **f** 0.255 **g** 0.312 **h** 0.782

2 Change these decimals to mixed numbers and simplify as far as possible.

a 2.75 **b** 14.35 **c** 55.55 **d** 36.625

e 79.235 **f** 124.452 **g** 163.128 **h** 201.402

explanation 2a explanation 2b online

3 Use division to change these fractions to decimals.

a $\frac{1}{5}$ **b** $\frac{1}{10}$ **c** $\frac{3}{8}$

d $\frac{2}{5}$ **e** $\frac{7}{8}$ **f** $\frac{9}{5}$

g $\frac{23}{4}$ **h** $\frac{37}{8}$ **i** $\frac{31}{4}$

4 Use a calculator to write each fraction as a decimal.

a $\frac{1}{40}$ **b** $\frac{1}{16}$ **c** $\frac{3}{80}$

d $\frac{3}{32}$ **e** $\frac{5}{16}$ **f** $\frac{36}{32}$

g $\frac{66}{40}$ **h** $\frac{99}{45}$ **i** $\frac{142}{64}$

5 This table shows the time Amy spent on homework last week.

Subject	Maths	English	Science	History	Geography	RS	French	Art	Music
Minutes	50	45	55	30	30	15	35	20	20

a What was the total time Amy spent on homework last week?

b What fraction of that time did she spend on each subject?

c Use a calculator to change each fraction in part **b** into a decimal.

6 **a** Write $\frac{1}{3}$ as a decimal using a calculator.

b What do you notice about the answer on the calculator display?

c Write down what you think $\frac{2}{3}$ will be as a decimal.

d Check your answer using a calculator.

e Predict the decimal forms of $\frac{3}{3}$, $\frac{4}{3}$, $\frac{5}{3}$, $\frac{6}{3}$ and $\frac{7}{3}$.

f Check your answers using a calculator.

7 Use a calculator to find the decimal equivalents of $\frac{1}{6}$, $\frac{1}{9}$, $\frac{1}{11}$ and $\frac{1}{12}$.

8 **a** Convert each fraction to a decimal.

i $\frac{1}{2}$ **ii** $\frac{2}{3}$ **iii** $\frac{3}{7}$

iv $\frac{7}{9}$ **v** $\frac{5}{11}$ **vi** $\frac{6}{15}$

vii $\frac{7}{16}$ **viii** $\frac{11}{12}$ **ix** $\frac{14}{24}$

b **i** Which fractions in part **a** give terminating decimals?

ii Which fractions in part **a** give recurring decimals?

9 Write three recurring decimals and their equivalent fractions.

explanation 3 online

10 **i** Write both fractions in each pair with a common denominator.

ii Which of the original fractions is bigger?

a $\frac{6}{10}, \frac{2}{5}$ **b** $\frac{3}{7}, \frac{4}{6}$ **c** $\frac{7}{8}, \frac{4}{5}$ **d** $\frac{14}{12}, \frac{6}{5}$

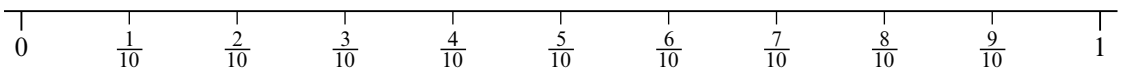
11 **i** Write the fractions in each group with a common denominator.

ii Write the original fractions in order of size, smallest first.

a $\frac{1}{4}, \frac{1}{5}, \frac{1}{6}$ **b** $\frac{3}{5}, \frac{2}{3}, \frac{1}{2}$ **c** $\frac{5}{8}, \frac{4}{7}, \frac{2}{3}$ **d** $\frac{7}{12}, \frac{9}{16}, \frac{13}{20}$

12 Convert the fractions in each group in question **11** to decimals. Use these to check the orders in part **ii**.

13 Copy this number line.



Mark these fractions on the number line.

a $\frac{2}{5}$ **b** $\frac{1}{3}$ **c** $\frac{4}{7}$ **d** $\frac{6}{20}$ **e** $\frac{7}{12}$

14 Which number in each pair is greater?

a 0.21 or $\frac{3}{16}$ **b** 0.25 or $\frac{4}{15}$ **c** 0.36 or $\frac{8}{23}$ **d** 0.78 or $\frac{27}{34}$

15 **i** Write each pair of fractions with a common denominator.

ii Work out the fraction that is exactly halfway between the pair.

a $\frac{2}{5}$ and $\frac{4}{9}$ **b** $\frac{3}{5}$ and $\frac{5}{7}$ **c** $\frac{1}{2}$ and $\frac{3}{5}$ **d** $\frac{2}{3}$ and $\frac{7}{8}$