

Terminating and Recurring Decimals

By writing the denominator as a product of its prime factors, decide if each of these fractions would convert to a terminating or recurring decimal.

- (a) $\frac{1}{8}$ (b) $\frac{1}{25}$ (c) $\frac{1}{15}$
 (d) $\frac{1}{14}$ (e) $\frac{1}{50}$ (f) $\frac{1}{16}$
 (g) $\frac{1}{30}$ (h) $\frac{1}{12}$ (i) $\frac{1}{40}$

Write out the following recurring decimals to show the first 10 decimal places.

- (a) $0.\dot{4}$ (b) $0.\dot{7}$
 (c) $0.\dot{1}4$ (d) $0.\dot{2}\dot{3}$
 (e) $0.\dot{1}2\dot{3}$ (f) $0.\dot{4}6\dot{1}$
 (g) $0.0\dot{5}$ (h) $0.1\dot{7}\dot{2}$

Use your calculator to convert the following fractions into terminating or recurring decimals.

- (a) $\frac{4}{9}$ (b) $\frac{2}{5}$ (c) $\frac{3}{10}$
 (d) $\frac{7}{11}$ (e) $\frac{5}{16}$ (f) $\frac{1}{8}$
 (g) $\frac{4}{7}$ (h) $\frac{29}{100}$ (i) $\frac{3}{35}$

Use your calculator to convert the following fractions into recurring decimals.

- (a) $\frac{1}{9}$ (b) $\frac{2}{9}$ (c) $\frac{3}{9}$

Can you spot a pattern?

Use your calculator to convert the following fractions into recurring decimals.

- (a) $\frac{12}{99}$ (b) $\frac{13}{99}$ (c) $\frac{14}{99}$

Can you spot a pattern?

- (a) $8 = 2 \times 2 \times 2$ TERMINATING
 (b) $25 = 5 \times 5$ TERMINATING
 (c) $15 = 3 \times 5$ RECURRING
 (d) $14 = 2 \times 7$ RECURRING
 (e) $50 = 2 \times 5 \times 5$ TERMINATING
 (f) $16 = 2 \times 2 \times 2 \times 2$ TERMINATING
 (g) $30 = 2 \times 3 \times 5$ RECURRING
 (h) $12 = 2 \times 2 \times 3$ RECURRING
 (i) $40 = 2 \times 2 \times 2 \times 5$ TERMINATING

- (a) $0.4444444444\dots$
 (b) $0.7777777777\dots$
 (c) $0.14141414\dots$
 (d) $0.2323232323\dots$
 (e) $0.1231231231\dots$
 (f) $0.4614614614\dots$
 (g) $0.0555555555\dots$
 (h) $0.1727272727\dots$
 (a) $0.\dot{4}$ (b) $0.\dot{4}$ (c) $0.\dot{3}$
 (d) $0.\dot{6}\dot{3}$ (e) 0.3125
 (f) 0.125 (g) $0.\dot{5}7142\dot{8}$
 (h) 0.29 (i) $0.0\dot{8}5714\dot{2}$

a) $0.\dot{1}$ b) $0.\dot{2}$ c) $0.\dot{3}$
 the numerator is the repeating unit

a) $0.\dot{1}2$ b) $0.\dot{1}3$ c) $0.\dot{1}4$
 the numerator is the two-digit repeating unit.