

# Recurring decimal

Q1. If  $x = 0.242424 \dots$

a What is  $100x$ ? \_\_\_\_\_

b By subtracting the original value from your answer to part a, work out the value of  $99x$ . \_\_\_\_\_

c What is  $x$  as a fraction? \_\_\_\_\_

Q2 . Convert each of these recurring decimals to a fraction.

a  $0.888888 =$  \_\_\_\_\_

b  $0.34343434 =$  \_\_\_\_\_

c  $0.45 =$  \_\_\_\_\_

d  $0.567567 =$  \_\_\_\_\_

e  $0.44444 =$  \_\_\_\_\_

f  $0.044444 =$  \_\_\_\_\_

g  $0.1444444 =$  \_\_\_\_\_

h  $0.045454 =$  \_\_\_\_\_

i  $2.77777 =$  \_\_\_\_\_

j  $7.63636363 =$  \_\_\_\_\_

k  $3.33333 =$  \_\_\_\_\_

l  $2.066666 =$  \_\_\_\_\_

Q3  $1/7$  is a recurring decimal.  $(1/7)^2 = 1/49$  is also a recurring decimal. Is it true that when you square any fraction that is a recurring decimal, you get another fraction that is also a recurring decimal? Try this with at least four numerical examples before you make a decision.

Q4 .  $1/4$  is a terminating decimal.  $(1/4)^2 = 1/16$  is also a terminating decimal. Is it true that when you square any fraction that is a terminating decimal, you get another fraction that is also a terminating decimal? Try this with at least four numerical examples before you make a decision.

Q5 . What type of fraction do you get when you multiply a fraction that gives a recurring decimal by another fraction that gives a terminating decimal? Try this with at least four numerical examples before you make a decision.

Q 6a. Convert the recurring decimal  $0.9$  to a fraction.

6b. Prove that  $0.49999$  is equal to  $0.5$ .

Q7. Express the recurring decimal  $0.072727272$  as a fraction. Give your answer in its simplest form. You **must** show your working.