Name: \_\_\_\_\_

# GCSE (1-9)

## **Recurring Decimals to Fractions**

#### Instructions

- · Use black ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
- there may be more space than you need.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- · You must show all your working out.

## Information

- · The marks for each question are shown in brackets
- use this as a guide as to how much time to spend on each question.

## **Advice**

- · Read each question carefully before you start to answer it.
- · Keep an eye on the time.
- Try to answer every question.
- · Check your answers if you have time at the end

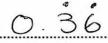
1 Convert  $\frac{2}{9}$  to a decimal.

$$\frac{0.2222}{9/2.000000}$$



(Total for question 1 is 2 marks)

2 Convert  $\frac{4}{11}$  to a decimal.



(Total for question 2 is 2 marks)

3 Convert  $\frac{5}{6}$  to a decimal.



(Total for question 3 is 2 marks)

Prove algebraically that the recurring decimal 0.8 can be written as  $\frac{8}{9}$ 

### (Total for question 4 is 2 marks)

Prove algebraically that the recurring decimal 0.47 can be written as  $\frac{43}{90}$ 

$$(2) - (1)$$
  $43 = 90 \times$ 

$$x = \frac{43}{90}$$

## (Total for question 5 is 2 marks)

Prove algebraically that the recurring decimal 0.23 can be written as  $\frac{7}{30}$ 

$$0.23 = x$$

$$\bigcirc$$

$$2.\dot{3} = 100$$
  
 $23.\dot{3} = 100$  x

$$21 = 90x$$

$$x = \frac{21}{90} = \frac{7}{30}$$

(Total for question 6 is 2 marks)

Write 0.16 as a fraction in its simplest form.

$$0.16 = x$$

$$1.6 = 10x$$

$$16.6 = 100x$$

$$15 = 90x$$

$$x = \frac{15}{90} = \frac{1}{6}$$

6

(Total for question 7 is 2 marks)

8 Write 0.27 as a fraction in its simplest form.

$$0.27 = x$$

$$2.7 = 10x$$

$$27.7 = 100x$$

$$25 = 90x$$

$$x = \frac{25}{90} = \frac{5}{18}$$

5

(Total for question 8 is 2 marks)

9 Write 0.43 as a fraction in its simplest form.

$$0.43 = x$$

$$4.3 = 10x$$

$$43.3 = 100x$$

$$39 = 90x$$

$$x = \frac{39}{90} = \frac{13}{30}$$

30

(Total for question 9 is 2 marks)

10 Prove algebraically that the recurring decimal 0.681 can be written as  $\frac{15}{22}$ 

$$0.681 = x$$

$$6.81 = 10x$$

$$681.81 = 1000x$$

$$675 = 990x$$

$$x = 675 = \frac{15}{990}$$

$$22$$

(Total for question 10 is 2 marks)

Prove algebraically that the recurring decimal 0.216 can be written as  $\frac{8}{37}$ 

$$0.216 = x$$

$$216.216 = 1000x$$

$$216 = 999x$$

$$x = \frac{216}{999} = \frac{8}{37}$$

(Total for question 11 is 2 marks)

Prove algebraically that the recurring decimal 0.126 can be written as  $\frac{14}{111}$ 

$$0.126 = x$$

$$126.126 = 1000x$$

$$126 = 999x$$

$$x = \frac{126}{999} = \frac{14}{111}$$

(Total for question 12 is 2 marks)

Write 3.254 as a fraction in its simplest form.

$$3.254 = x$$

$$32.54 = 10x$$

$$3254.54 = 1000x$$

$$3222 = 990x$$

$$x = \frac{3222}{990}$$

$$= 179 \text{ or } 3\frac{14}{55} = \frac{179}{55}$$
(Total for question 13 is 3 marks)

14 Write 2.742 as a fraction in its simplest form.

$$2.742 = x$$

$$27.42 = 1000$$

$$2742.42 = 10000$$

$$2715 = 9900$$

$$x = \frac{2715}{990}$$

$$= \frac{181}{66} \cdot 02 \cdot 2\frac{49}{66}$$
(Total for question 14 is 3 marks)

Write 3.594 as a fraction in its simplest form.

(Total for question 15 is 3 marks)

16 x is an integer such that  $1 \le x \le 9$ 

Prove that  $0.0x = \frac{x}{99}$ 

$$0.0x = 9$$

$$0.0x = 1009$$

(Total for question 16 is 2 marks)

 $0.54 \times 0.5$ Work out: 17

$$0.54 = 2$$

$$54 = 99x$$
  
 $x = 54 = 6$ 

$$\frac{6}{11} \times \frac{5}{9} = \frac{30}{99}$$

$$=\frac{10}{33}$$

(Total for question 17 is 4 marks)

18 Work out: 
$$0.39 \div 0.63$$

$$0.39 = x$$

$$39.39 = 100x$$

$$39 = 99x$$

$$32 = 99x$$

$$33 = 99x$$

$$33 = 99x$$

$$34 = 99x$$

$$35 = 99x$$

$$37 = 99x$$

$$37 = 99x$$

$$39 = 99x$$

$$313 = 7$$

$$313 = 7$$

$$\frac{13}{33} \div \frac{7}{11}$$

$$\frac{13}{333} \times \frac{1}{7} = \frac{13}{21}$$

13

### (Total for question 18 is 4 marks)

19 Work out: 
$$0.0\dot{7} \div 0.\dot{1}8\dot{5}$$

$$0.07 = x$$

$$0.185 = y$$

$$0.7 = 1000$$

$$185.185 = 1000y$$

$$7.7 = 1000x$$

$$7 = 900x$$

$$x = \frac{7}{90}$$

$$x = \frac{5}{27}$$

$$\frac{7}{90} \times \frac{37}{5} = \frac{21}{50}$$

(Total for question 19 is 4 marks)