**JRA Tutors**
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# Recurring Decimals to Fractions

Grade 6 topic · Higher tier · Edexcel and AQA

**How to use this pack**
20 questions that get harder as you go. Questions 1–15 (60 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 88 marks.

## Warm-up

**1** Write 0.44444… (the digit 4 recurs) as a fraction in its simplest form. **[3 marks]**

**Answer** _____

**2** Write 0.22222… (the digit 2 recurs) as a fraction in its simplest form. **[3 marks]**

**Answer** _____

**3** Write 0.77777… (the digit 7 recurs) as a fraction in its simplest form. **[3 marks]**

**Answer** _____

**4** Write 0.88888... (the digit 8 recurs) as a fraction in its simplest form. **[3 marks]**

**Answer** _____

**5** Write 0.55555... (the digit 5 recurs) as a fraction in its simplest form. **[3 marks]**

**Answer** _____

## Core

**6** Write 0.272727... (the digits 27 recur) as a fraction in its simplest form. **[4 marks]**

**Answer** _____

**7** Write 0.454545... (the digits 45 recur) as a fraction in its simplest form. **[4 marks]**

**Answer** _____

**8** Write 0.363636... (the digits 36 recur) as a fraction in its simplest form. **[4 marks]**

**Answer** _____

**9** Write 0.090909... (the digits 09 recur) as a fraction in its simplest form. **[4 marks]**

**Answer** _____

**10** Write 0.090909... (the digits 09 recur) as a fraction in its simplest form. **[4 marks]**

**Answer** _____

## Stretch

**11** Write 0.2777... (only the digit 7 recurs) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

**12** Write 0.1888... (only the digit 8 recurs) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

**13** Write 0.3666... (only the digit 6 recurs) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

**14** Write 0.4888... (only the digit 8 recurs) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

**15** Write 0.1666... (only the digit 6 recurs) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

## Challenge

**16** Work out 0.333... + 0.454545... (the digits 45 recur). Give your answer as a fraction in its simplest form. **[6 marks]**

**Answer** _____

**17** Write 0.142142142... (the digits 142 recur) as a fraction in its simplest form. **[5 marks]**

**Answer** _____

**18** Prove algebraically that 0.7222... (only the digit 2 recurs) can be written as 13/18. **[5 marks]**

**Answer** _____

**19** Write 0.05666... (only the digit 6 recurs) as a fraction in its simplest form. **[6 marks]**

**Answer** _____

**20** Work out 0.6666... × 0.3333... (the digits 6 and 3 recur). Give your answer as a fraction in its simplest form. **[6 marks]**

**Answer** _____