HIGHER

6.1 Recurring Decimals to Fractions: 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Convert 0.2222... (2 recurring) to a fraction in its simplest form.

(Total for Question 1 is 2 marks)

2 Write 0.3333... (3 recurring) as a fraction in its simplest form.

(Total for Question 2 is 2 marks)

3 Show that 0.7777... (7 recurring) = 7/9.

(Total for Question 3 is 3 marks)

4 Without converting 7/16 to a decimal, explain how you can tell whether it will give a terminating decimal or a recurring decimal.

(Total for Question 4 is 2 marks)

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Mark scheme · 6.1 Recurring Decimals to Fractions: 10-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

x = 0.2222... and 10x = 2.2222... written (or equivalent valid method)	**M1**
2/9 cao	**A1**

Answer: 2/9

Question 2

3/9 seen or equivalent unsimplified fraction with denominator 9	**M1**
1/3 cao	**A1**

Answer: 1/3

Question 3

x = 0.7777... and 10x = 7.7777... written (or equivalent)	**M1**
subtracts to get 9x = 7, dependent on M1	**dM1**
cso, x = 7/9 with full algebraic method shown	**A1**

Answer: 7/9 (shown)

Question 4

states $16 = 2^4$, i.e. the denominator (in simplest form) has only 2 and/or 5 as prime factors	**B1**
correctly concludes the decimal terminates because of this, oe	**B1**

Answer: Terminates, because $16 = 2^4$ has only prime factors 2 and 5

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