FOUNDATION & HIGHER

HIGHER EXTENDS

Name ..... Class .....

# N10: Fractions and recurring decimals

*Solve problems with terminating and recurring decimals*

20 marks · 25 minutes · Non-calculator

**1)** Which of these fractions give recurring decimals? $\frac{1}{12}, \frac{3}{40}, \frac{7}{30}$ Explain how you know without dividing.

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**[Question 1: 2 marks]**

**2)** Write $0.\dot{2}\dot{7} + 0.\dot{0}\dot{3}$ as a fraction in its simplest form.

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**[Question 2: 3 marks]**

**3)** $0.\dot{3}$ of a number is 14. Find the number.

.....

**[Question 3: 2 marks]**

**4)** Write $0.1\dot{2}$ as a fraction in its simplest form.

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**[Question 4: 3 marks]**

**5)** $\frac{n}{11} = 0.\dot{6}\dot{3}$. Find $n$.

.....

**[Question 5: 2 marks]**

**6)** Work out $0.\dot{4} \times 0.\dot{6}$. Give your answer as a fraction in its simplest form.

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**[Question 6: 3 marks]**

**7)** Work out $0.\dot{1} + 0.\dot{2} + 0.\dot{3} + \cdots + 0.\dot{8}$

.....

**[Question 7: 3 marks]**

**8)** Write in order, smallest first: $0.45,\ 0.\dot{4}\dot{5},\ 0.4\dot{5}$

.....

**[Question 8: 2 marks]**

**End of paper – 20 marks in total**

# Answers and brief mark scheme

| Q | Answer | Method / notes |
|---|---|---|
| 1 | $\frac{1}{12}$ and $\frac{7}{30}$ | Denominators have prime factor 3; 40 has only 2 and 5 (P1); A1. |
| 2 | $\frac{10}{33}$ | $\frac{27}{99}$ and $\frac{3}{99}$ (P1, P1); A1. |
| 3 | 42 | $\frac{1}{3}$ of the number is 14 (P1); A1. |
| 4 | $\frac{11}{90}$ | $100x - 10x$ (P1); $90x = 11$ (P1); A1. |
| 5 | 7 | $\frac{63}{99} = \frac{7}{11}$ (P1); A1. |
| 6 | $\frac{8}{27}$ | $\frac{4}{9} \times \frac{6}{9}$ (P1, P1); A1. |
| 7 | 4 | $\frac{1+2+\cdots+8}{9}$ (P1); $\frac{36}{9}$ (P1); A1. |
| 8 | 0.45, $0.\dot{4}\dot{5}$, $0.4\dot{5}$ | Writes 0.4545... and 0.4555... (P1); A1. |