

# Topic Test 1 (20 minutes)

Number recap and review - Higher

## Section A

10 minutes. Calculator.

- 1 The  $n$ th term of a sequence of fractions is given by  $\frac{n}{3n-1}$

Show that the 4th term is the first recurring decimal.

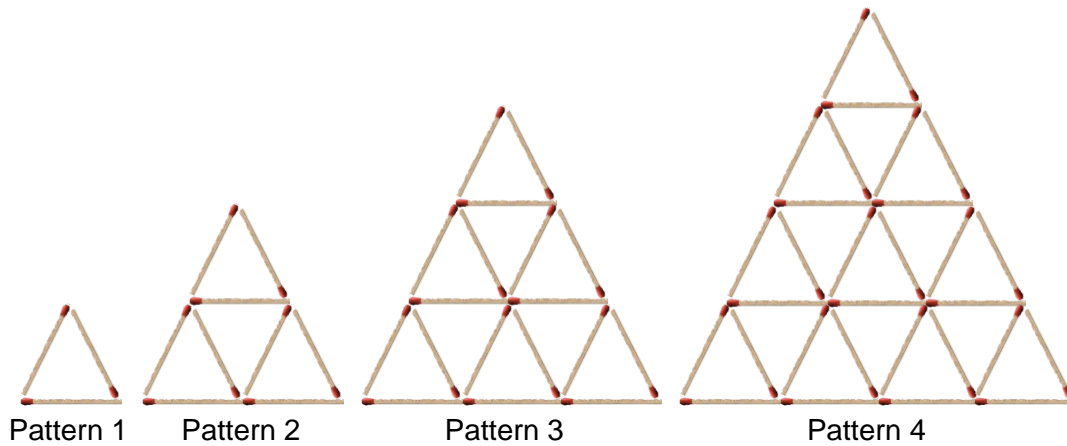
[2 marks]

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- 2 Patterns are made with matchsticks.



Work out how many matchsticks are needed to make Pattern  $n$ .

[4 marks]

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Answer \_\_\_\_\_

- 3 Alf needs cement.

Cement is sold in bags that have a mass of 25 kg to the nearest kg  
His trailer has a safe working load of 220 kg to the nearest 10 kg

Work out the greatest number of bags of cement he can be sure to carry safely on his trailer.

[4 marks]

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Answer \_\_\_\_\_

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## Section B

10 minutes. Non-calculator. Put your calculator away. You may still work on section A but you must **not** use a calculator.

- 4 Circle the fraction that is a recurring decimal.

[1 mark]

$$\frac{3}{8}$$

$$\frac{8}{9}$$

$$\frac{9}{10}$$

$$\frac{13}{16}$$

- 5 A number  $x$ , when rounded to 2 significant figures, is 250.  
The same number  $x$ , when rounded to 1 significant figure, is 300.

Circle the range of  $x$ .

[1 mark]

$$250 < x < 255$$

$$245 \leq x \leq 255$$

$$250 < x \leq 255$$

$$250 \leq x < 255$$

- 6 Circle the value of  $27^{\frac{1}{3}}$

[1 mark]

$$\frac{1}{9}$$

$$\frac{1}{3}$$

$$3$$

$$9$$

- 7 Write  $0.4\dot{5}$  as a fraction in its lowest form

[2 marks]

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Answer \_\_\_\_\_

8 Work out the value of  $125^{\frac{2}{3}}$

[2 marks]

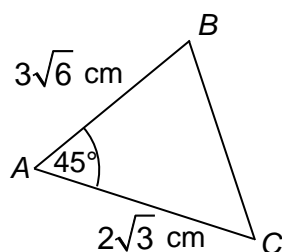
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Answer \_\_\_\_\_

9 Work out the area of this triangle.

[2 marks]



Not drawn  
accurately

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Answer \_\_\_\_\_  $\text{cm}^2$

10 Solve the equation  $81^x = 3$

[1 mark]

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$x =$  \_\_\_\_\_