Topic Test 1 (20 minutes)
Number recap and review - Higher

Section A
10 minutes. Calculator.

1   The nth term of a sequence of fractions is given by $\dfrac{n}{3n-1}$
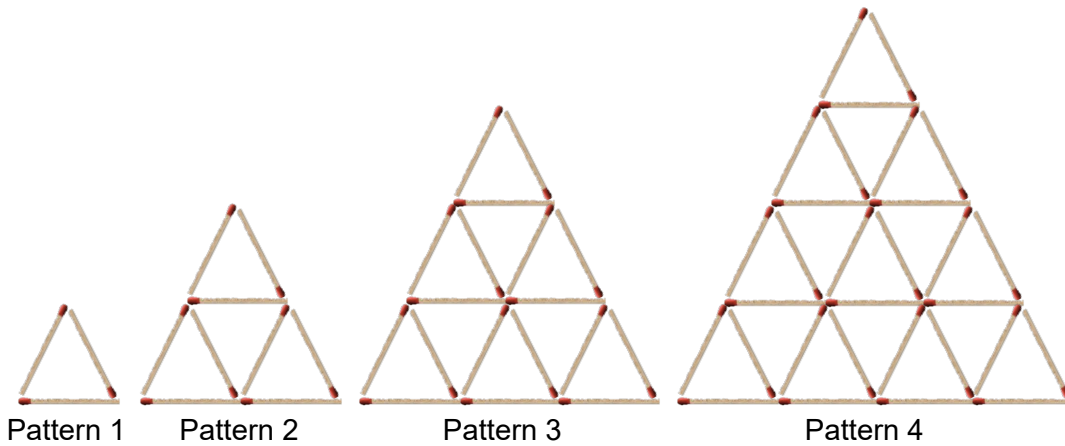
Show that the 4th term is the first recurring decimal.

[2 marks]

2 Patterns are made with matchsticks.

Pattern 1   Pattern 2   Pattern 3   Pattern 4

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

[4 marks]

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]

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]

$$\frac{3}{8} \qquad\qquad \frac{8}{9} \qquad\qquad \frac{9}{10} \qquad\qquad \frac{13}{16}$$

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]

$$\frac{1}{9} \qquad\qquad \frac{1}{3} \qquad\qquad 3 \qquad\qquad 9$$

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

[2 marks]

_____

_____

_____

Answer _____

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

[2 marks]

Answer _____

9 Work out the area of this triangle.

[2 marks]

$3\sqrt{6}$ cm

A 45°

$2\sqrt{3}$ cm C

B
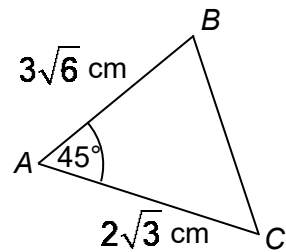
Not drawn
accurately

Answer _____ cm^2

10 Solve the equation $81^x = 3$

[1 mark]

$x =$ _____