

## National 5 Past Paper Homework 2

### Paper 1 (non-calculator)

1. Evaluate  $16 \cdot 9 + 0 \cdot 54 \times 40$  2

2. The function  $f(x)$  is given by the formula  $f(x) = 2x^2 - 5$ , where  $x$  is a real number.

Find the value of  $f(-3)$ . 2

3. A sequence of numbers is

**7, 19, 37, .....**

Numbers from this sequence can be written in the following way :

1<sup>st</sup> term :      7      =       $2^3 - 1^3$

2<sup>nd</sup> term :      19      =       $3^3 - 2^3$

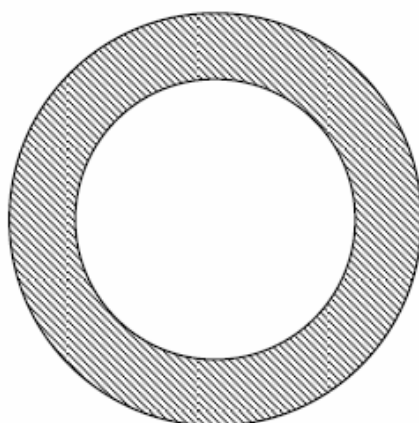
3<sup>rd</sup> term :      37      =       $4^3 - 3^3$  .....

(a) Write down a similar expression for the 4<sup>th</sup> term. 1

(b) Hence or otherwise find the  $n^{\text{th}}$  term in its **simplest** form. 3

4. Evaluate  $5 \cdot 9 - 6 \cdot 3 \div 5$  2

5. The shaded area between the two concentric circles shown below is  $S$  square centimetres.



The radius of the larger circle is **3.5cm** and the radius of the smaller circle is **2.5cm**.

Find the value of  $S$  in terms of  $\pi$ .

Paper 2 (Calculator)

1. During the 2004 Athens Olympic games the BBC recorded audience figures for different events.

$1.07 \times 10^7$  people watched Paula Radcliffe compete in the marathon.

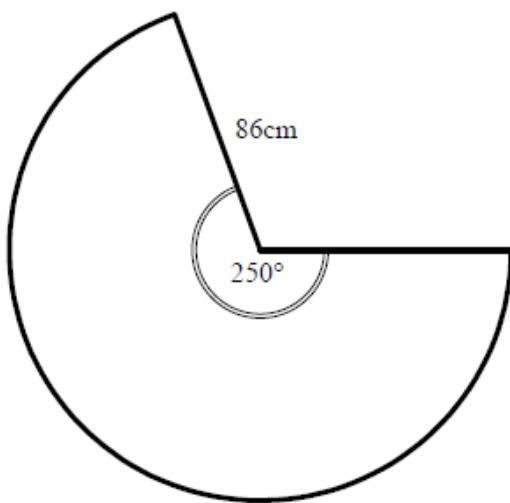
$8.8 \times 10^6$  people watched Kelly Holmes win in the 800 metres.

- (a) How many more people watched the marathon than the 800 metres?  
**Answer in scientific notation.**
- (b) Express this as a percentage of the 800 metres audience to the nearest percent.

1

2

2.



The logo of Cheeses-R-Us, a cheese superstore, is shown across. The logo is a sector of a circle of radius of 86 cm. The larger angle at the centre is  $250^\circ$ .

The manager decides to improve the sign by applying gold tape around the full perimeter of the logo.

What length of tape will be required?

4

3.

Miss Pitstop has just bought a brand new car costing £17 500.



During the first year the value of the car is predicted to fall by 14% then by 6.5% every successive year thereafter.

How much is the car worth after 4 years? Give your answer correct to 2 significant figures.

KU KE

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