## National 5 Revision F Paper 2 (based on Credit 2012)

1. There are 2·69 million vehicles in Scotland.

   It is estimated that this number will increase at a rate of 4% each year.

   If this estimate is correct, how many vehicles will there be in 3 years' time?

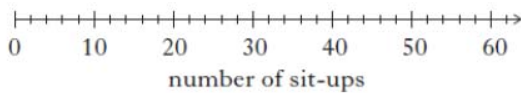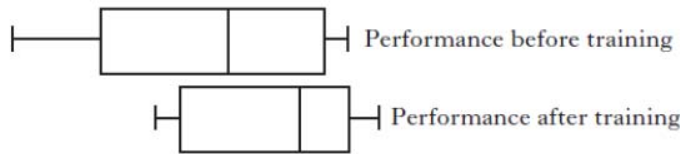   Give your answer **correct to 3 significant figures**.

   4

2. Before training, athletes were tested on how many sit-ups they could do in one minute.

   The following information was obtained:

   | | |
   |---|---|
   | lower quartile ($Q_1$) | 23 |
   | median ($Q_2$) | 39 |
   | upper quartile ($Q_3$) | 51 |

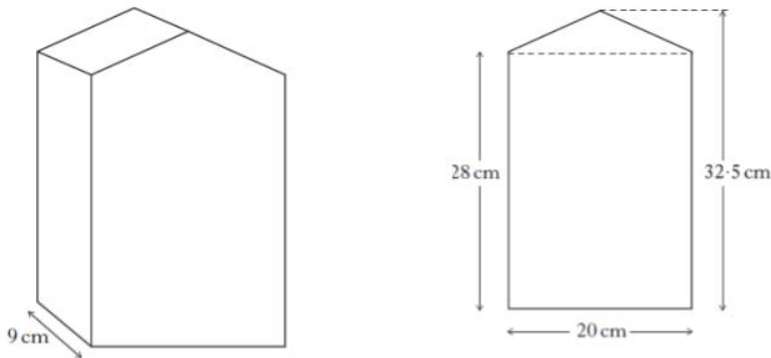   (a) Calculate the semi-interquartile range.

   1

   (b) Make **two** valid statements to compare the performances before and after training.

   2

3. A container for oil is in the shape of a prism.

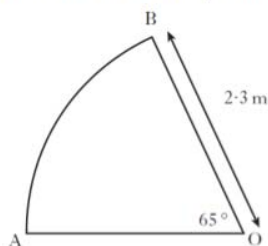   The width of the container is 9 centimetres.

   The uniform cross section of the container consists of a rectangle and a triangle with dimensions as shown.

   Calculate the volume of the container, **correct to the nearest litre.**

   4

4. A sector of a circle, centre O, is shown below.

   The radius of the circle is 2·3 metres.
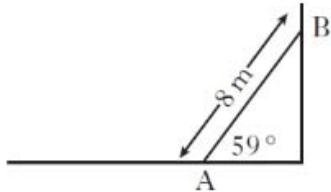
   Angle AOB is 65°.

   Find the length of the arc AB.

   3

5. The price for Paul's summer holiday is £894·40.

   The price includes a 4% booking fee.

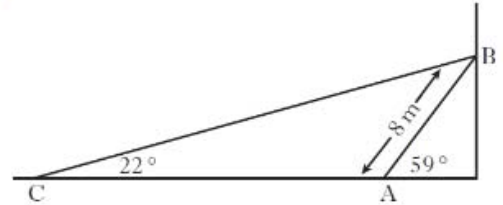   What is the price of his holiday without the booking fee?

   **3**

6. A heavy metal beam, AB, rests against a vertical wall as shown.

   The length of the beam is 8 metres and it makes an angle of 59° with the ground.

   

   A cable, CB, is fixed to the ground at C and is attached to the top of the beam at B.

   The cable makes an angle of 22° with the ground.

   

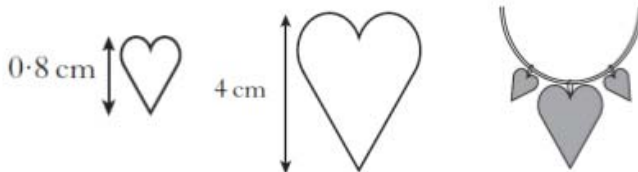   Calculate the length of cable CB.

   **3**

7. A necklace is made of beads which are mathematically similar.

   The height of the smaller bead is 0·8 centimetres and its area is 0·6 square centimetres.

   The height of the larger bead is 4 centimetres.

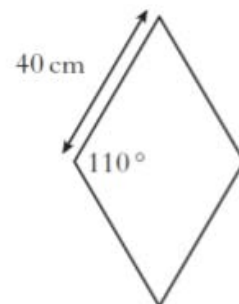   Find the area of the larger bead.

   

   **3**

8. Paving stones are in the shape of a rhombus.
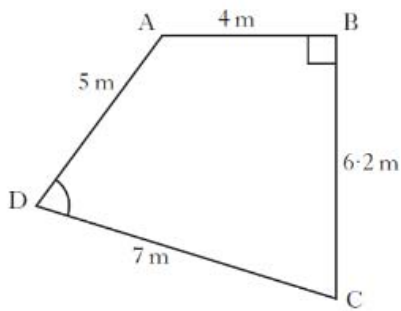
   

   The side of each rhombus is 40 centimetres long.

   The obtuse angle is 110°.

   Find the area of one paving stone.

   **4**

**9.** . Quadrilateral ABCD with angle ABC = 90° is shown below.



- AB = 4 metres
- BC = 6·2 metres
- CD = 7 metres
- AD = 5 metres

(a) Calculate the length of AC.

**2**

(b) Calculate the size of angle ADC.

**4**

**10.**   $f(x) = 3 \sin x°,$        $0 \le x < 360$

(a) Find $f(270)$.
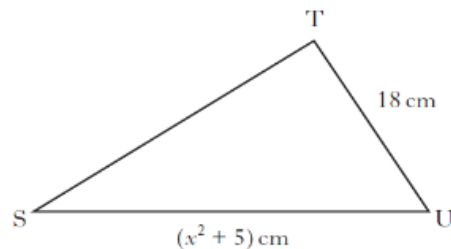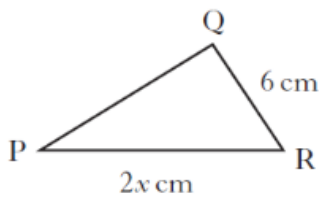
**1**

(b) $f(t) = 0·6.$

Find the two possible values of $t$.

**4**

**11.**

Triangles PQR and STU are mathematically similar.

The scale factor is 3 and PR corresponds to SU.



(a) Show that $x^2 - 6x + 5 = 0$.

**2**

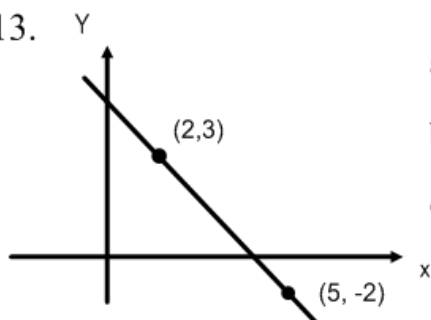(b) Given QR is the shortest side of triangle PQR, find the value of $x$.

**3**

**12.** State the nature of the roots quadratic function
    $4x^2 + 3x - 1 = 0$

**3**

**13.**



a) Find the equation of the straight line.

b) Find the point where this line crosses the y-axis.

c) Find the point where this line crosses the x-axis.

**5**