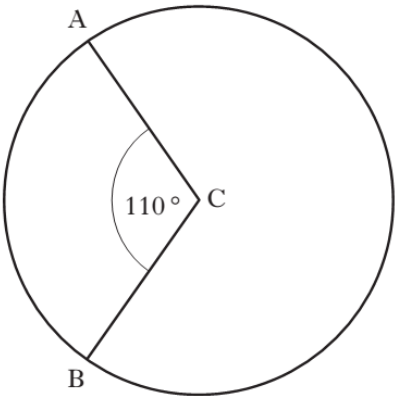
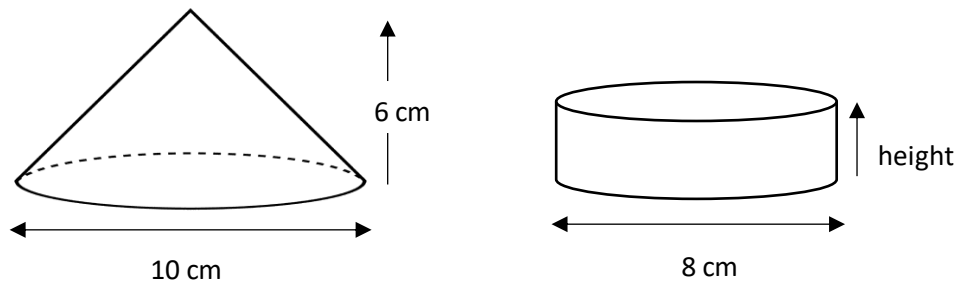


	Calculator Prelim Revision 4	<b>50</b>	
<b>1</b>	Households in Aberdeen City produced 85 500 tonnes of waste in 2018. The city council aim to reduce this total by 7% per year. Calculate the total amount of waste expected to be produced in Aberdeen in 2021. Give your answer correct to <b>three significant figures</b> .	<b>4</b>	
<b>2</b>	A function is defined as $g(x) = 4 - 2x$ Given that $g(t) = 88$ , calculate $t$	<b>2</b>	
<b>3</b>	For the minor sector of the circle shown in the diagram. The centre angle ACB is $110^\circ$ The length of the radius AC is 26 cm Calculate the area of the <b>major</b> sector		<b>3</b>
<b>4</b>	A single sesame seed weighs $3.6 \times 10^{-3}$ grams. The weight of a single poppy seed is 8% of the weight of a sesame seed. Calculate the weight of a poppy seed in grams. Give your answer in scientific notation	<b>2</b>	
<b>5</b>	A new heating system is installed in a greenhouse. Sample temperatures in degrees Celsius are recorded for one week:  <p style="text-align: center;">22 23 25 21 19 24 20</p> <p>(a) For this sample calculate the mean and the standard deviation</p> <p>The heating system is operating effectively if the mean temperature is <math>23 \pm 0.6</math> degrees and the standard deviation is less than 2.3 degrees.</p> <p>(b) Is this system working effectively? Give a reason for your answer</p>	<b>4</b>        <b>2</b>	

6

Shown below is a cone and a cylinder which have the same volume



(a) The cone has a diameter of 10 cm and a height of 6cm.

Calculate the volume of the cone.

Give your answer rounded to a whole number.

3

(b) The cylinder has the same volume of the cone, and its diameter is 8cm.

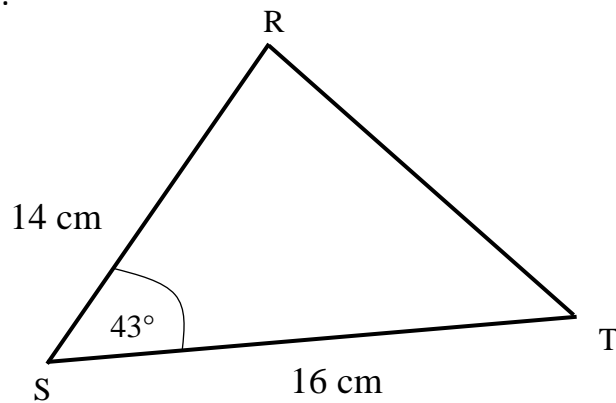
Calculate the height of the cylinder.

2

7

For the triangle shown below.

Calculate the size of side RT

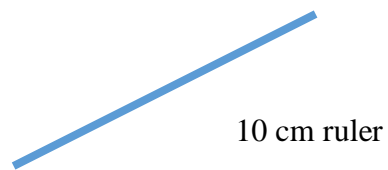
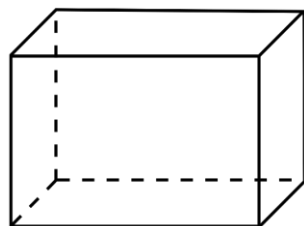


3

8

The box below is a cuboid with dimensions of 7 cm by 4 cm by 5 cm.

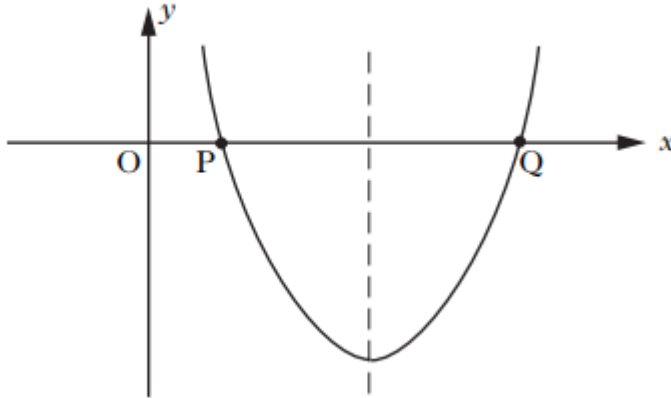
Can I fit a 10 cm ruler into this box?



3

9

The graph below shows part of a parabola with the equation  $y = x^2 - 6x + 5$



- (a) State the coordinates of points P and Q  
(b) State the equation of the axis of symmetry for this graph

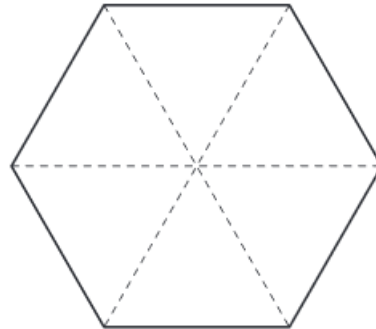
4  
1

10

The top of a table is in the shape of a regular hexagon.

The three diagonals of the hexagon are shown as dotted line which have a length of 30 centimetres.

Calculate the area of the top of the table.



4

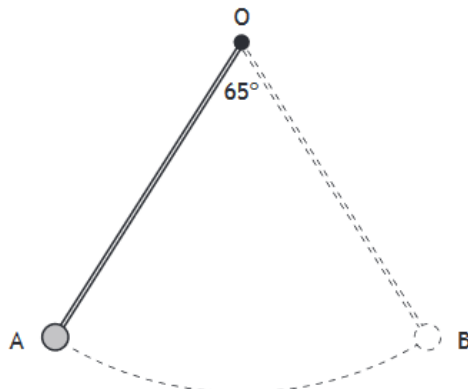
11

Remove the brackets and simplify  $\left(\frac{3}{5}p^4\right)^2$

2

12

The pendulum of a clock swings along an arc of a circle, centre O



The pendulum swings through an angle of  $65^\circ$ .

The length of arc AB is 20 cm

Calculate the length of the pendulum OA.

3

<p><b>13</b></p>	<p>The blades on a wind turbine rotate at a steady pace.</p> <p>The height, <math>h</math> metres, of the top blade of the turbine above the ground at <math>t</math> seconds is given by the function</p> $h(t) = 10 + 6 \sin t^\circ$ <p>(a) Calculate the height of the blade after 30 seconds</p> <p>(b) Find the two times during the first turn when the height of the blades is 12 metres</p>	<p><b>1</b></p> <p><b>4</b></p>
<p><b>14</b></p>	<p>Sketch the graph of <math>y = \sin(x - 90)^\circ</math>, <math>0 \leq x \leq 360^\circ</math></p> <p>On your sketch clearly show the points of intersection with the <math>x</math>-axis and the <math>y</math>-axis and the coordinates of the minimum and maximum values.</p>	<p><b>3</b></p>