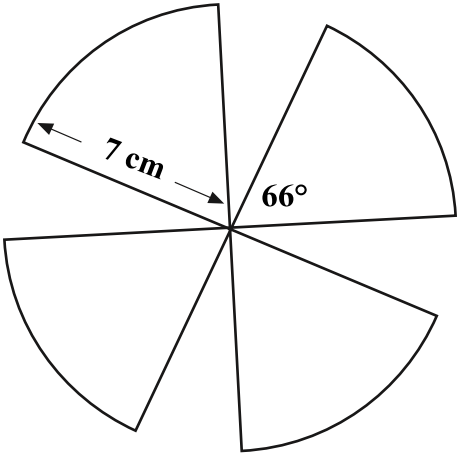
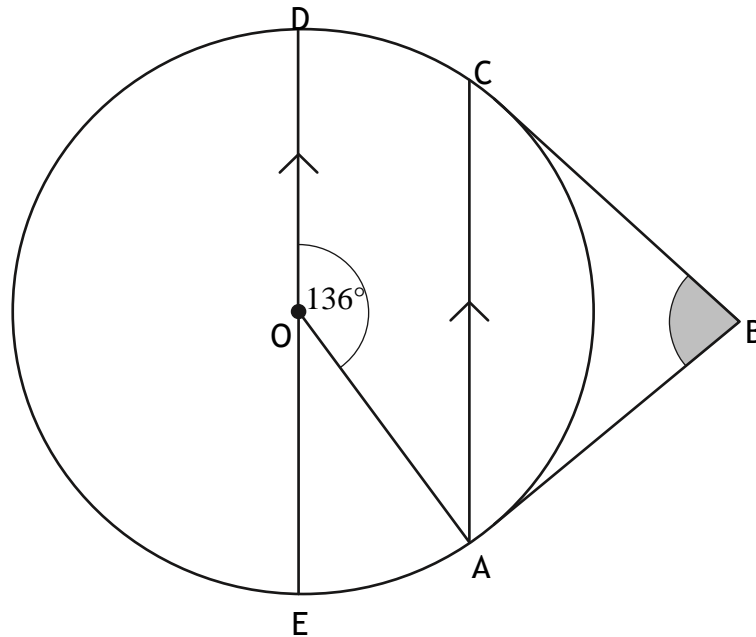


<b>S4</b>	December A/B Revision 3 – Non Calculator	<b>20</b>
<b>1</b>	Evaluate $6\frac{1}{5} - 1\frac{2}{3}$	<b>2</b>
<b>2</b>	Solve the inequality $9 - 3(x - 1) > 15$	<b>3</b>
<b>3</b>	Find the equation of the straight line joining the points (-1, 5) and (2, 11). Give the equation of the straight line in its simplest form.	<b>3</b>
<b>4</b>	Determine the nature of the roots of the function $f(x) = 4x^2 - 3x + 1$	<b>2</b>
<b>5</b>	Express $\sqrt{50} - \sqrt{2} + \sqrt{18}$ as a surd in the simplest form	<b>3</b>
<b>6</b>	7 200 tickets were sold for a sporting event. 10% of the tickets were not sold. How many tickets were available to buy for this event?	<b>3</b>
<b>7</b>	(a) Factorise (i) $3y^2 + 6y$ (i) $y^2 + y - 2$	<b>2</b>
	(b) Hence express $\frac{3y^2+6y}{y^2+y-2}$ in its simplest form	<b>2</b>

S4	December A/B Revision 3 – Calculator	<b>30</b>
<b>1</b>	<p>A cereal manufacturer intends to reduce the sugar content in all of their products by 6% over the next three years.</p> <p>The current sugar content in their leading brand is 47 grams in every 100 grams of cereal.</p> <p>Calculate the sugar content per 100 grams in this same cereal after 3 years.</p>	<b>3</b>
<b>2</b>	<p>A cylindrical drinks can is 15 centimetres high and 6.5 centimetres in diameter.</p> <p>A new design for the can has the same volume, but has a reduced height of 12 centimetres. What is the diameter of the new can?</p> <p>Give your answer correct to <b>1 decimal place</b></p>	<b>3</b>
<b>3</b>	<p>A fan is made from four identical plastic blades.</p>  <p>Each blade is a sector of a circle with a radius of 7 cm.</p> <p>The angle at the centre of each sector is <math>66^\circ</math>.</p> <p>Calculate the <b>total</b> area of plastic required to make the blades for this fan.</p>	<b>4</b>

4 The diagram below shows a circle with a centre O.



On the diagram

- AB and CB are tangents to the circle
- AC and ED are parallel
- Angle AOD is  $136^\circ$

Calculate the size of angle ABC

3

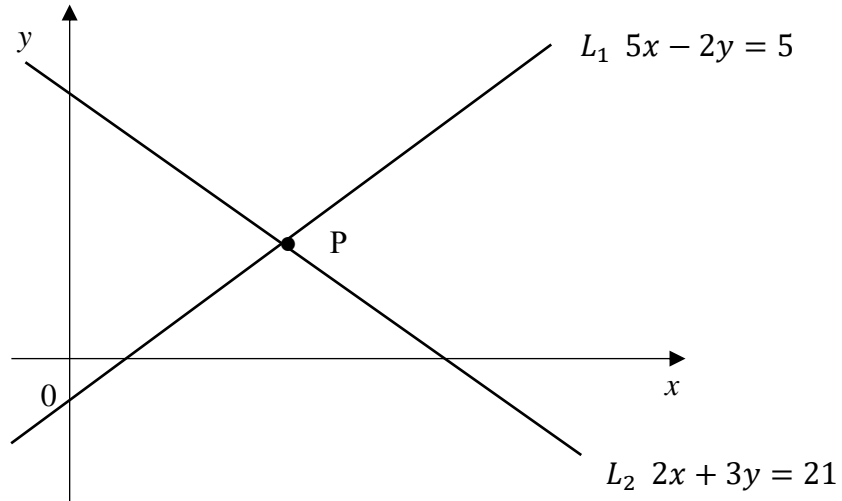
5 In a local farm shop honey is sold in two different sizes. These jars are mathematically similar.



The smaller jar is 6 cm high and weighs 300 grams.  
The larger jar is 7 cm high. What is the weight of the larger jar?

3

6 In the diagram two straight lines  $L_1$  and  $L_2$  meet at point P.



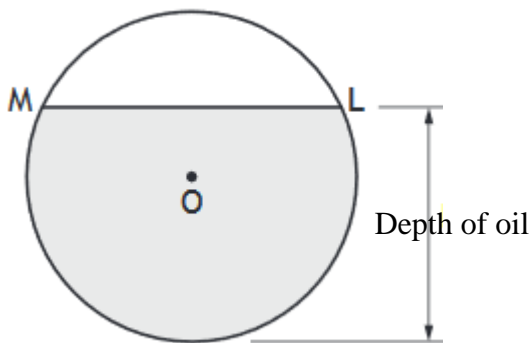
Line  $L_1$  has equation  $5x - 2y = 4$

Line  $L_2$  has equation  $2x + 3y = 10$

Algebraically find the coordinates of point P

5

7 The diagram below shows the circular cross section of an oil tanker.

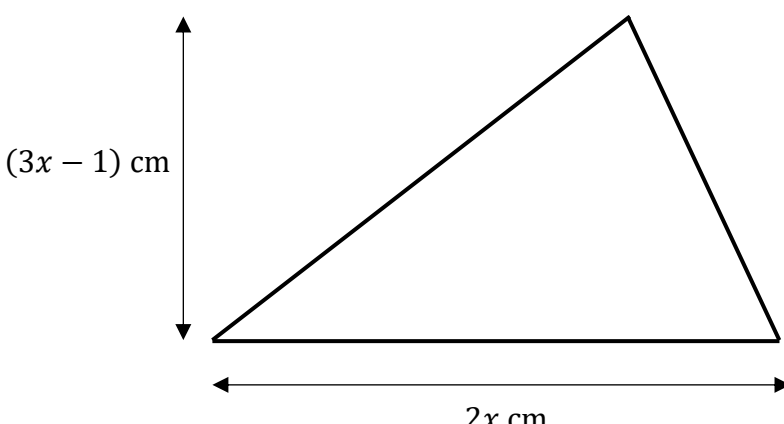


The radius of the circle, centre O is 1.5 metres.

The width of the surface of the oil in the tank, represented by ML in the diagram is 2.3 metres.

Calculate the depth of the oil in the tank

4

8	<p>The height of this triangle is <math>(3x - 1)</math> centimetres and the base is <math>2x</math> centimetres</p> <div style="text-align: center;">  </div> <p>If the area of the triangle is 24 square centimetres calculate the value of <math>x</math></p>	5
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Revision 3 Non Calculator Answers	
1	$6\frac{1}{5} - 1\frac{2}{3} = 5\left(\frac{1}{5} - \frac{2}{3}\right) = 5\left(\frac{3}{15} - \frac{10}{15}\right) = 5\left(-\frac{7}{15}\right) = 4\frac{8}{15}$ or $\frac{68}{15}$
2	$9 - 3x + 3 > 15 \rightarrow 12 - 3x > 15 \rightarrow -3 > 3x \quad -1 > x$ or $x < -1$
3	Gradient is $\frac{6}{3} = 2$ either use $y - 11 = 2(x - 2)$ so $y = 2x + 7$ or $y = mx + c, \quad 11 = 2(2) + c, \quad c = 7 \quad y = 2x + 7$
4	$b^2 - 4ac = (-3)^2 - 4 \times 4 \times 1 = -7, \quad b^2 - 4ac < 0$ so there are no real roots
5	$\sqrt{50} - \sqrt{2} + \sqrt{18} = 5\sqrt{2} - \sqrt{2} + 3\sqrt{2} = 7\sqrt{2}$
6	$7200 = 90\%$ so <b>8000 = 100%</b>
7	(a) $3y(y + 2)$ and $(y + 2)(y - 1)$ (b) $\frac{3y(y+2)}{(y+2)(y-1)} = \frac{3y}{(y-1)}$

