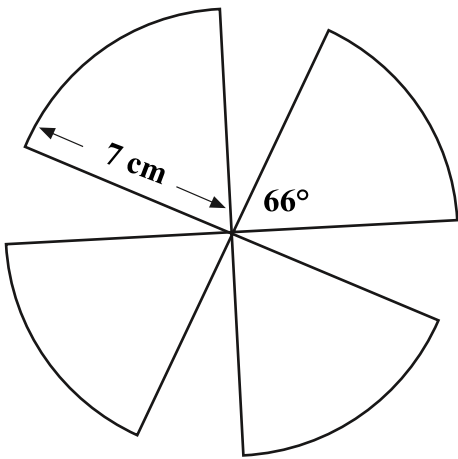
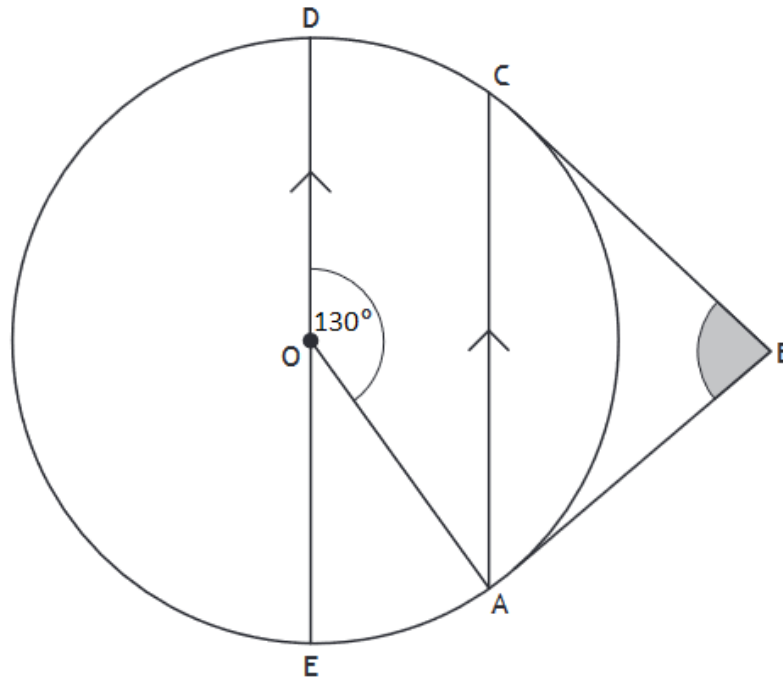


	A/B Revision 3 – Non Calculator	20
1	Evaluate $6\frac{1}{5} - 1\frac{2}{3}$	2
2	Solve the inequality $9 - 3(x - 1) > 15$	3
3	<p>A farmer records the weight of some of his calves. The scattergraph below shows the relationship between the age (A months) and the weight (W kilograms) of the calves.</p> <p>A line of best fit is drawn Point D represents a 2 month old calf with a weight of 80 kilograms Point E represents a 12 month old calf which weighs 280 kilograms</p> <p>(a) Find the equation of the line of best fit in terms of A and W. Give the equation in the simplest form</p> <p>(b) Use your equation from part (a) to estimate the weight of a 10 month old calf.</p>	3 1
4	Express $x^2 + 6x + 7$ in the form $(x + a)^2 + b$	2
5	Express $\sqrt{50} - \sqrt{2} + \sqrt{18}$ as a surd in the simplest form	2
6	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?	3
7	Factorise (i) $y^2 - 16$ (ii) $y^2 + y - 12$ Hence express $\frac{y^2 - 16}{y^2 + y - 12}$ in its simplest form	2 2

	A/B Revision 3 – Calculator	30
1	<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>	3
2	<p>A cylindrical 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 1 decimal place</p>	3
3	<p>Solve the quadratic equation $4 + 6x - x^2 = 0$</p> <p>Give your answers correct to 1 decimal place.</p>	3
4	<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 66°.</p> <p>Calculate the total area of plastic required to make the blades for this fan.</p>	4

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

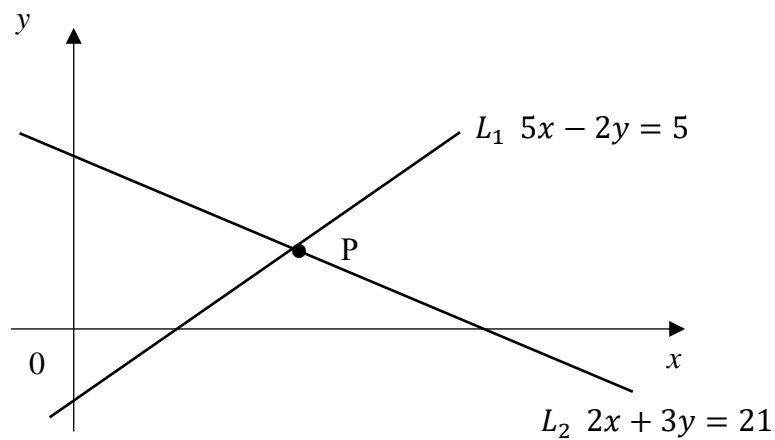


- AB and CB are tangents to the circle
- AC and ED are parallel
- Angle AOD is 130°

Calculate the size of angle ABC

3

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

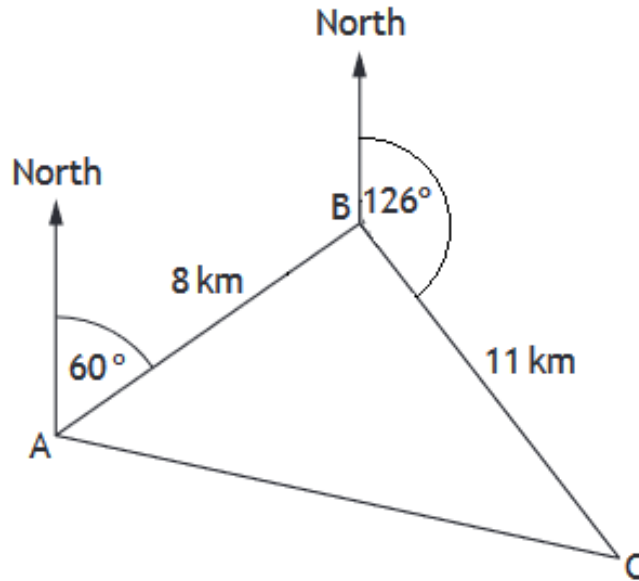


Line L_1 has equation $5x - 2y = 5$
 Line L_2 has equation $2x + 3y = 21$

Algebraically find the coordinates of point P

5

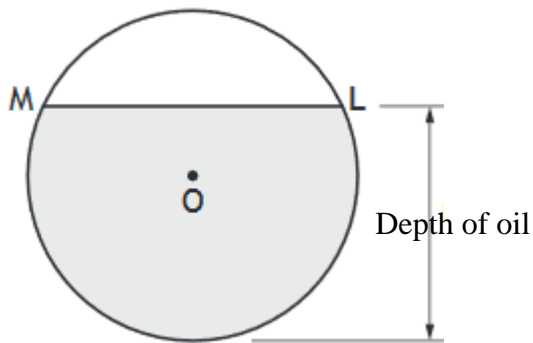
7 In a race, boats sail a course around 3 buoys represented by A, B and C in the diagram below.



- (a) Find the size of angle ABC
 (b) Hence find the length of AC

2
3

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



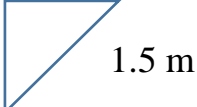
The radius of the circle, centre O is 1.5 metres.

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

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	$9 - 3x + 3 > 15 \rightarrow 12 - 3x > 15 \rightarrow -3 > 3x \rightarrow -1 > x$ or $x < -1$
3	Gradient is $\frac{200}{10} = 20$ $y = 20x + 40$ so $W = 20A + 40$ a ten month calf is 240 kg
4	$(x + 3)^2 - 2$
5	$\sqrt{50} - \sqrt{2} + \sqrt{18} = 5\sqrt{2} - \sqrt{2} + 3\sqrt{2} = 7\sqrt{2}$
6	$7200 = 90\%$ so 8000 = 100%
7	$(y + 4)(y - 4)$ and $(y + 4)(y - 3)$ $\frac{(y + 4)(y - 4)}{(y + 4)(y - 3)} = \frac{y - 4}{y - 3}$

Revision 3 Calculator Answers	
1	$47 \times 0.94^3 = 39.037448$ 39 grams in every 100g miles
2	$V(\text{original}) = \pi \times 3.25^2 \times 15 = 497.75 \text{cm}^3$ $V(\text{new}) = 497.75 = \pi \times r^2 \times 12$, $r^2 = 13.2..$, $r = 3.63..$ diameter is 7.3 cm
3	$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \times 4 \times (-1)}}{2 \times (-1)} \rightarrow x = \frac{-6 \pm \sqrt{52}}{-2}$ $x = -0.60555.., x = 6.60555..$ so $x = -0.6$ and $x = 6.6$
4	Area of sector = $\frac{66}{360} \times \pi \times 7^2 = 28.22197 \text{cm}^2$ Area of fan is $4 \times 28.22 = 112.388 =$ 113cm^2 .
5	$EOA = 180^\circ - 130^\circ = 50^\circ = OAC$, $OAB = 90^\circ$, so $BAC = 40^\circ$, $ABC = 180^\circ - 2 \times 40^\circ = 100^\circ$
6	Simultaneous equations $5x - 2y = 5$ Scale $15x - 6y = 15$ $2x + 3y = 21$ $4x + 6y = 42$ $19x = 57$ $x = 3, y = 5$ P(3, 5)
7	(a) Co-interior angles between parallel lines ($60^\circ + 120^\circ = 180^\circ$) Angle $ABC = 360^\circ - 120^\circ - 126^\circ = 114^\circ$ (b) Cosine Rule $AC^2 = 8^2 + 11^2 - 2 \times 8 \times 11 \times \cos 114$. $AC^2 = 256.58$, $AC = 16 \text{ km}$
8	Establish a right-angled triangle  Use Pythagoras $PA = \sqrt{1.5^2 - 1.1^2} = 0.96306 \text{ m}$ Depth of oil is $1.5 + 0.96 =$ 2.46 metres