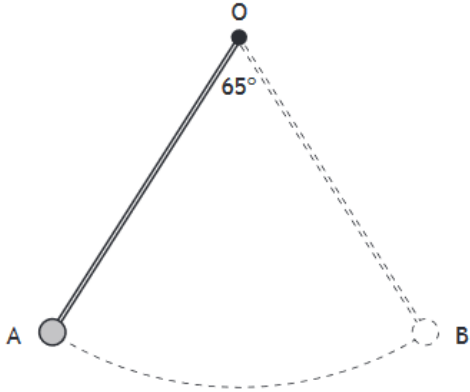
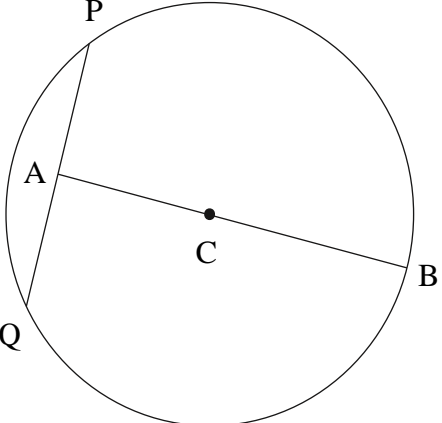
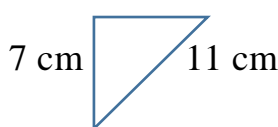


	November A/B Revision 2 – Non Calculator	20
1	Multiply out the brackets and collect like terms $(2x + 5)(x^2 - 3x + 1)$	3
2	Solve the equation $\frac{x}{6} - \frac{1}{2} = 5$	2
3	Calculate the median and the semi-interquartile range for this data set 18 16 26 24 14 16 19 20 27 30	2
4	Solve algebraically the system of equations $2x + 3y = 3$ $5x + 2y = 13$	3
5	Express $\frac{2}{x+1} + \frac{3}{x-1}$, $x \neq -1, x \neq 1$ as a single fraction in its simplest form	3
6	Express $\frac{6}{\sqrt{2}}$ with a rational denominator in its simplest form	2
7	A parabola has equation $y = x^2 - 6x + 11$ (a) Write the equation of the parabola in the form $y = (x - a)^2 + b$ (b) State the coordinates of (i) The turning point of this parabola (ii) The point of intersection with the y-axis	2 1
	November A/B Revision 2 – Calculator	30
1	Amir normally runs a total distance of 42 miles per week. Over the next four weeks he intends to increase his distance by 8% per week. How many miles will Amir run in his fourth week	3

2	<p>Jupiter's largest moon Io has a radius of approximately 1823 km.</p> <p>Calculate the volume of Io. Give your answer in scientific notation correct to two significant figures.</p>	2
3	<div data-bbox="370 430 1008 955" data-label="Diagram"> </div> <p>In this diagram</p> <ul style="list-style-type: none"> • O is the centre of the circle • PQ is a diameter of the circle • PQR is a straight line • RS is a tangent to the circle at S • Angle OPS is 28° <p>Calculate the size of angle QRS</p>	3
4	<div data-bbox="397 1470 1144 1827" data-label="Diagram"> </div> <p>Is this tile in the shape of a right angled triangle?</p>	3

5	<p>(a) Factorise $4x^2 - 1$</p> <p>(b) Hence find the roots of the equation $4x^2 - 1 = 0$</p>	2 2
6	Change the subject of the formula $l = \sqrt{2t - a}$ to t	3
7	<p>A straight line has an equation $5x + 2y = 20$</p> <p>(a) What is the gradient of this straight line</p> <p>(b) State the coordinates of the x-intercept of this straight line</p>	2 2
8	<p>The pendulum of a clock swings along an arc of a circle, centre O</p>  <p>The pendulum swings through an angle of 65°.</p> <p>The length of the arc AB is 30 centimetres.</p> <p>Calculate the length of the pendulum.</p>	4
9	<p>The radius of the circle with centre C is 11 centimetres.</p> <p>A is the midpoint of chord PQ</p> <p>The length of line AB is 18 centimetres</p> <p>Calculate the length of chord PQ</p>	 <p>4</p>

Revision 2 Non Calculator Answers	
1	$(2x + 5)(x^2 - 3x + 1) = 2x^3 - 6x^2 + 2x + 5x^2 - 15x + 5 = 2x^3 - x^2 - 13x + 5$
2	$\frac{x}{6} - \frac{1}{2} = 5$, multiply through by 6 $x - 3 = 30$, $x = 33$
3	Median is 19.5 Q_1 is 16, Q_3 is 26 SIQR is 5
4	$\begin{array}{rcl} 2x + 3y = 3 & \text{Scale} & 10x + 15y = 15 \\ 5x + 2y = 13 & & \underline{10x + 4y = 26} \\ & & 11y = -11, \quad y = -1, x = 3 \end{array}$
5	$\frac{2}{x+1} + \frac{3}{x-1} = \frac{2(x-1) + 3(x+1)}{(x+1)(x-1)} = \frac{5x+1}{(x+1)(x-1)}$
6	$\frac{6}{\sqrt{2}} = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$
7	<p>(a) $x^2 - 6x + 11 = (x - 3)^2 + 2$</p> <p>(b) Turning point is (3, 2), y-intercept is (0, 11)</p>

Revision 2 Calculator Answers	
1	$42 \times 1.08^4 = 57.14053$ 57 miles
2	$V = \frac{4}{3} \times \pi \times 1823^3 = 2.537748709 \times 10^{10} = 2.5 \times 10^{10} \text{ km}^3$
3	$POS = 180^\circ - 2 \times 28^\circ = 124^\circ$, $SOQ = 180^\circ - 124^\circ = 56^\circ$, $QRS = 90^\circ - 56^\circ = 34^\circ$
4	For right-angled triangles $c^2 = a^2 + b^2$, $100^2 = 55^2 + 80^2$, $100^2 = 10000$, $55^2 + 80^2 = 9425$ $10000 \neq 9425$, so by the Converse of Pythagoras this tile is not a right-angle triangle
5	<p>(a) $4x^2 - 1 = (2x + 1)(2x - 1)$</p> <p>(b) $(2x + 1)(2x - 1) = 0$, $x = -\frac{1}{2}$ or $x = \frac{1}{2}$</p>
6	$l = \sqrt{2t - a} \rightarrow l^2 = 2t - a \rightarrow l^2 + a = 2t \rightarrow t = \frac{l^2 + a}{2}$
7	<p>(a) $5x + 2y = 20$, $y = -\frac{5}{2}x + 20$ gradient is $-\frac{5}{2}$</p> <p>(b) x - intercept, $y = 0$, $5x = 20$, $x = 4$ (4, 0)</p>
8	$Arc = \frac{\theta}{360^\circ} \times \pi D$, $30 = \frac{65^\circ}{360} \times \pi D$, $\frac{10800}{65 \times \pi} = D$, $D = 52.888 \text{ cm}$, The length of the pendulum is $52.888 \div 2 = 26.4 \text{ cm}$
9	Establish a right-angled triangle <div style="text-align: center;">  </div> <p>Use Pythagoras</p> $PA = \sqrt{11^2 - 7^2} = 8.458 \text{ cm}$ PQ is $2 \times PA = 16.97 = 17 \text{ cm}$