	A/B Revision 1 – Non Calculator	20
1	Multiply out the brackets and collect like terms $(2x + 3)(5x - 1)$	2
2	Calculate $3\frac{1}{5} \times 1\frac{1}{4}$	2
3	A function is given as $f(x) = 10 - 2x$	
	(a) Evaluate $f(-2)$	1
	(b) If $f(t) = -6$ , calculate a value for $t$	2
4	The line AB passes through the points (0,5) and (8,9)	
	State the equation of the Line AB (8,9)	
		3
5	Determine the nature of the roots of the function $f(x) = 4x^2 - 3x + 1$	2
6	Express in the simplest form $2a^7 \times (3a^4)^2$	3
7	The diagram shows part of the graph of $y = x^2 + 6x - 16$ (a) Find the coordinates of A and B, the <i>x</i> -intercepts for the graph.	3
	$\mathbf{C}$	
	(b) State the coordinates of the minimum turning point C.	2

	A/B Revision 1 – Calculator		30
1	The diagram to the right shows a circle with centre C.	A	
	This circle has a radius of 2.6 cm	(110°)C	
	Calculate the length of the <b>major</b> arc of this circle	B	3
2	For the triangle shown below.	R	
	Angle $\angle SRT$ is 104° Side RT is 15 cm Side ST = 23 cm	104° 15 cm	
	Calculate the size of angle S	$\overline{}$	3
	s	23 cm	
3	12 cm	A child's top is in the shape of a hemisphere with a cone on the top, as shown in the diagram.  The toy is 10 cm wide and 12 cm high.  Calculate the volume of this toy.  Give your answer correct to 2 significant figures	
	10 cm	significant figures	5
	Factorise $3x^2 - x - 2$		2

5	For a Scottish election a tally was taken of the number of people who voted per hour for the first eight hours.	
	The results for a polling station in Arran are as follows	
	28 37 36 22 45 54 66 32	
	(a) Calculate the mean and standard deviation for this data	4
	(b) At the same time a tally was taken in Dundee. The mean number of people voting per hour was 63 and the standard deviation was 11.2.	
	Make two comparisons between the data recorded at both polling stations	2
6	Gemma receives an 8.5% increase on her annual salary, After this increase her annual salary is now £24412.50	
	What was Gemma's original annual salary?	3
7	Solve the quadratic equation $4x^2 - 7x - 5 = 0$	
	Give your answers correct to 1 decimal place.	3
8	Davina and Alexa both book into the Premier Inn in St Andrews	
	Davina stays for 3 nights and has breakfast on 2 mornings, her bill comes to £172.	
	Alexa stays for 2 nights and only eat breakfast one morning, her bill comes to £110.50	
	Write two algebraic equations to illustrate this information and use these to find the cost of one night in this Premier Inn.	5

	Revision 1 Non Calculator Answers
1	$(2x+3)(5x-1) = 10x^2 - 2x + 15x - 3 = 10x^2 + 13x - 3$
2	$3\frac{1}{5} \times 1\frac{1}{4} = \frac{16}{5} \times \frac{5}{4} = 4$
3	(a) $f(-2) = 10 - 2(-2) = 14$ (b) $10 - 2t = -6$ , $16 = 2t$ , $t = 8$
4	Gradient is $m = \frac{4}{8} = \frac{1}{2}$ Equation is $y = \frac{1}{2}x + 5$
5	$b^2 - 4ac = (-3)^2 - 4 \times 4 \times 1 = -7$ , $b^2 - 4ac < 0$ so there are no real roots
6	$2a^7 \times (3a^4)^2 = 2a^7 \times 9a^8 = 18a^{15}$
7	(a) $x^2 + 6x - 16 = 0$ (x+8)(x-2) = 0 x = -8 and $x = 2$ A (-8,0), B (2,0)
	(b) For turning point $x = -3, y = -25, C (-3, -25)$

	Revision 1 Calculator Answers
1	For major arc use $360^{\circ} - 110^{\circ} = 250^{\circ}$ Arc $= \frac{250^{\circ}}{360^{\circ}} \times \pi \times 5.2 = 11.3 \text{ cm}$
2	$\frac{\sin 104}{23} = \frac{\sin P}{15}, \ \sin P = \frac{15 \times \sin 104}{23} = 0.6328, \ P = \sin^{-1}(0.6328) = 39^{\circ}$ Cone $V = \frac{1}{3} \times \pi \times 5^{2} \times (12 - 5)$ $V = 183.2595715$
3	Cone $V = \frac{1}{3} \times \pi \times 5^2 \times (12 - 5)$ $V = 183.2595715$
	Hemi-sphere $V = \frac{1}{2} \times \frac{4}{3} \times \pi \times 5^3$ $V = 261.7993878$
	Volume is $183.259 + 261.79 = 445.05895 = 450 \text{ cm}^3$
4	(3x+2)(x-1)
3	$(3x + 2)(x - 1)$ Mean is 40 people St Dev = $\sqrt{\frac{1454}{7}}$ = 14.412
	On average more people voted per hour in Dundee and the number of voters was more
	consistent
4	£24412.50 = $108.5\%$ so £ <b>22500</b> = <b>100</b> %
5	$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4 \times 4 \times (-5)}}{2 \times 4} \to x = \frac{7 \pm \sqrt{129}}{8}$
	$2 \times 4$ $7$ $x = 8$
	x = 2.294727, x = -0.544727 so $x = 2.3$ and $x = -0.5$
6	Simultaneous equations
	3n + 2b = 172 Scale $3n + 2b = 172$
	2n + b = 110.50 $4n + 2b = 221$
	n = 49
	One night costs £49