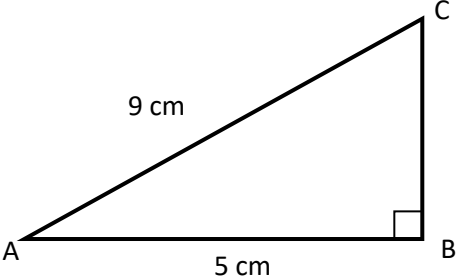


A	S3 Nat 5 May Revision	38
1	Simplify $\sqrt{20}$	2
2	Simplify $2a^3 \times 5a^4 \div a^2$	2
3	<p>The diagram shows a sector of a circle with a radius of 25 cm and a centre angle of 280°</p> <p>Find the area of this circle.</p>	3
4	Expand the brackets and simplify $(2x - 1)(x + 3)$	2
5	Change the subject of the formula to g $p = 7g + 5$	2
6	<p>A ball has a diameter of 6 cm</p> <p>Calculate the volume of the ball.</p> <p>Give your answer correctly rounded to a whole number.</p>	3
7	Factorise $x^2 + 3x + 2$	2
8	 <p>For the right-angled triangle shown above calculate the length of side CB</p>	2
9	Subtract $5\frac{2}{3} - 2\frac{1}{4}$	2
10	Write $x^2 + 8x - 5$ in completed square form $(x + a)^2 + b$	2
11	Find the gradient of the straight line between the points $A(2,7)$ and $B(5,13)$	1
12	Solve the inequality $7 - 2x > 19$	2

13	Bacteria in a petri dish increase at a rate of 7% per hour. At 12 noon there are 4000 bacteria in the petri dish. How many bacteria will be present two hours later?	3
14	Calculate the mean and standard deviation for this data sample 13 14 16 17 12 18	4
15	Solve algebraically this system of equations. $2x + 3y = 5$ $3x - 2y = 14$	3
16	(a) Factorise $x^2 - 25$ (b) Hence simplify $\frac{x^2 - 25}{(x + 5)^2}$	1 2

A	Answers		
1	$\sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$	2	$2a^3 \times 5a^4 \div a^2 = 10a^{3+4-2} = 10a^5$
2	Area $\frac{280}{360} \times \pi \times 25^2 = 1527 \text{ cm}^2$	4	$2x^2 + 6x - x - 3 = 2x^2 + 5x - 3$
5	$p - 5 = 7g \rightarrow g = \frac{p - 5}{7}$	6	$V = \frac{4}{3} \times \pi \times 3^3 = 113.097.. = 113 \text{ cm}^3$
7	$(x + 2)(x + 1)$	8	$CB^2 = 9^2 - 5^2, \quad CB^2 = 56,$ $CB = 7.48 \text{ cm}$
9	$3\left(\frac{2}{3} - \frac{1}{4}\right) = 3\left(\frac{8}{12} - \frac{3}{12}\right) = 3\frac{5}{12}$	10	$(x + 4)^2 - 21$
11	Gradient is $\frac{6}{3} = 2$	12	$-2x > 12, \quad 2x < -12, \quad x < -6$
13	$4000 \times 1.07^2 = 4579.6$	14	Mean is $\frac{90}{6} = 15$ Standard deviation is $\sqrt{\frac{28}{5}} = 2.37$
15	$6x + 9y = 15$ $6x - 4y = 28$ $y = -1$ and $x = 4$	16	$x^2 - 5 = (x + 5)(x - 5)$ $\frac{x^2 - 25}{(x + 5)^2} = \frac{(x + 5)(x - 5)}{(x + 5)(x + 5)} = \frac{x - 5}{x + 5}$