Day 331	S Tier 10-a-day
1 Factorise $9x^2 - 9x + 2$	
2 A shop buys a bike for £140. It adds a 30% mark-up to get the selling price. In a sale the selling price is reduced by 15%. Work out the percentage profit or loss on the original cost.	
3 Solve $\frac{x-3}{2} + \frac{x-6}{3} = -6$	
4 The point P(−1, 2) is reflected in the line y = x. The image is then rotated 180° about the origin. (a) Write down the coordinates of the final image of P. (b) Describe fully the single transformation that is equivalent to these two transformations.	
5 Show that $(2 + 3\sqrt{3})(2 - 3\sqrt{3})$ is an integer.	

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6 The ratio of men to women people at a meeting is 9 : 8. Then $\frac{2}{3}$ of the men and $\frac{1}{4}$ of the women are taken out. Work out the ratio of men to women now.	
7 Without using a calculator, work out $0.\dot{8}\dot{2} \times 0.\dot{4}\dot{0}$ Give your answer as a fraction in its simplest form.	
8 A point A is on level ground in line with the base of a tower. (Calculator) The angle of elevation of the top of the tower from A is 46°. B is a point on the same line, 25 m further from the tower than A. The angle of elevation of the top of the tower from B is 19°. Work out the height of the tower. Give your answer to 1 decimal place.	
9 A and B are two events. P(A) = 0.2, P(B) = 0.5 and P(A or B) = 0.6 (a) Work out P(A and B). (b) Are A and B independent? You must show your working.	
10 Solve $\sin x = \frac{1}{2}$ for $0° \leq x \leq 360°$. Do not use a calculator.	