Day 228	IGCSE 10-a-day
1 Simplify fully $\frac{2\sqrt{150}}{3\sqrt{6}}$	
2 Work out the value of $a^2 - 3bc$ when a = 1, b = 2 and c = 3.	
3 A curve has equation $y = -2x^2 - 5x - 5$. The gradient at the point P on the curve is -1. Find the coordinates of P.	
4 Solve $\frac{x - 2}{3} \leq \frac{5 + 4x}{4}$	
5 The mean of the heights in cm for the Year 10 students is 61. The mean of the heights in cm for the Year 11 students is 51. The mean for all of the Year 10 students and Year 11 students together is 54. Work out the ratio of the number of Year 10 students to the number of Year 11 students.	

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6 $y = x^4 - 8x^2 + 7$ Find the coordinates of the stationary points of the curve and determine the nature of each.	
7 The nth term of a sequence is $n^2 + 4n + 4$. (a) Work out the 10th term. (b) Is 400 a term of the sequence? You must show your working.	
8 $y = ab^x$, where a and b are positive constants. When x = 1, y = 240. When x = 3, y = 345.6. Find the values of a and b, and the value of y when x = 4.	
9 A sector of a circle has radius 15 cm and angle 120°. The sector is made into a cone by joining the two straight edges together. (a) Work out the radius of the base of the cone. (b) Work out the exact volume of the cone. Give your answer in terms of π, as a surd if necessary.	
10 P is the point $(p, \frac{3}{2}p^2)$ on the curve $y = \frac{3}{2}x^2$, where $p \neq 0$. The normal to the curve at P meets the y-axis at the point Q. Show that the y coordinate of Q is $\frac{3}{2}p^2 + \frac{1}{3}$.	