Day 294	IGCSE 10-a-day
1 (a) Solve $3 - 2x \geq 9$ (b) n is an integer. Write down all the values of n that satisfy $-2 \leq 2n < 4$	
2 In triangle PQR, side QR is extended to S. Angle QPR = $(5x - 20)°$ Angle PQR = $(2x + 5)°$ Angle PRS = $(5x + 17)°$ (a) Work out the value of x. (b) Work out the size of angle PRQ.	
3 The function $f(x) = 3x^2 - 30x - 7$ is increasing when $x > k$. Find the value of k.	
4 The length of a rope is 0.07 m, correct to 1 significant figure. Write down the error interval for the length of a rope, using l.	
5 An alloy is made by mixing 80 cm^3 of nickel with 80 cm^3 of lead. The density of nickel is 8.9 g/cm^3. The density of lead is 11.3 g/cm^3. Work out the density of the alloy.	

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6 The number of bacteria in a culture, N, after t hours is modelled by $N = -2t^3 + 24t^2 + 8t + 1000$ for $0 \leq t \leq 16$ Find the time at which N is increasing most rapidly, and the rate of increase at this time.	
7 Solve $x^2 + 2x < 8$	
8 The volume of a cube is 718 cm^3, correct to the nearest cm^3. Work out the upper bound of the edge length of the cube. Give your answer correct to 3 significant figures. (Calculator)	
9 A rectangle has area 56 cm^2, correct to 2 significant figures. Its length is 8.300000000000000710542735760100185871124267578125 cm, correct to 2 significant figures. Work out the lower bound of the width of the rectangle. Give your answer correct to 3 significant figures. (Calculator)	
10 The normal to the curve $y = x^2 + x - 2$ at the point P where $x = -1$ meets the curve again at Q. Find the coordinates of Q.	