Day 332	IGCSE 10-a-day
1 Work out the value of $(p - q)^2 - (p + q)^2$ when $p = 5$, $q = -2$ and $r = -3$.	
2 A sector of a circle has radius 4 cm and angle 200°. (a) Work out the length of the arc of the sector. (b) Work out the area of the sector. Give each answer in terms of π.	
3 The width of a table is 12 cm, truncated to a whole number. Write down the error interval for the width of a table, using w.	
4 A curve has equation $y = x^3 - 12x^2 + 31x + 8$. Find the equations of the two tangents to the curve that are parallel to the line $y = -5x - 4$.	
5 £1,000 is invested at 3% per year compound interest. Work out the least whole number of years after which the investment is worth more than £1,250. (Calculator)	

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6 Kira invests £8,000. The rates of interest for the next 3 years are 3%, 5% and 6%. Compound interest is paid. Work out the value of the investment after 3 years. Give your answer to the nearest penny. (Calculator)	
7 The curve $y = x^3 + ax^2 + bx + 4$ has stationary points at $x = 2$ and $x = 4$. Find the values of a and b.	
8 $f(x) = -x - 1$ and $g(x) = x^2 - 1$ Solve $fg(x) = gf(x)$	
9 $y = x^4 - 2x^2 - 6$ Find the coordinates of the stationary points of the curve and determine the nature of each.	
10 p = 10 and r = 3.6, each correct to 1 decimal place. q = 2.65, correct to 2 decimal places. Work out the lower bound of $\frac{p - q}{r}$. Give your answer correct to 3 significant figures. (Calculator)	