Day 256	IGCSE 10-a-day
1 $y = \frac{-6x^6 + 5x^2 - 1}{x^3}$ Find $\frac{dy}{dx}$.	
2 A fair 6-sided dice and a spinner numbered 1 to 5 are each thrown once. The first score and the second score are recorded. (a) Work out the probability that the product is greater than 8. (b) Given that the first number is even, work out the probability that the product is greater than 8.	
3 (a) Write $2 - 6x - x^2$ in the form $a - (x + b)^2$ (b) Write down the maximum value of $2 - 6x - x^2$ and the value of x for which it occurs.	
4 Triangle ABC has AB = 4 cm and BC = 6 cm. The area of triangle ABC is 6 cm^2. Angle ABC is acute. Work out the size of angle ABC. Do not use a calculator.	
5 Solve $3x^2 - 9x - 30 < 0$	

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6 The graph of y = f(x) has a minimum point at (−2, 9). Write down the coordinates and the type of turning point on each graph. (a) y = −f(x) (b) y = f(x) − 5	
7 The curve $y = x^3 + kx$ has a stationary point at $x = -3$. (a) Find the value of k. (b) Find the coordinates of the other stationary point.	
8 Machine A makes 50% of the items and machine B makes the rest. 6% of items from A are faulty and 8% of items from B are faulty. An item is chosen at random. (a) Work out the probability that the item is faulty. (b) The item is faulty. Work out the probability that it came from machine A.	
9 The curve $y = -x^3 + 6x^2 - 9x + k$, where k is a constant, has the x-axis as a tangent. Find the two possible values of k.	
10 Write $\frac{4^{n-1} \times 8^n}{8^n}$ in the form 2^{an+c} where a and c are integers.	