Day 27	IGCSE 10-a-day
1 Machine A makes 20% of the bolts in a factory. Machine B makes the rest. 80% of the bolts from machine A are faulty. 40% of the bolts from machine B are faulty. (a) Work out the probability that a bolt chosen at random is faulty. (b) A faulty bolt is found. Work out the probability that it was made by machine A.	
2 $y = -2x^4 - 64x$ Find the coordinates of the stationary point and determine its nature.	
3 6 workers can build a wall in 24 days. After 6 days, 2 of the workers leave. The rest carry on working at the same rate. How many more days does it take to finish?	
4 $f(x) = x^2 - 3x + 4$ The graph of $y = f(x)$ is transformed. Find the equation of the graph after it is (a) reflected in the y-axis (b) stretched parallel to the x-axis with scale factor $\frac{1}{2}$	
5 Work out the exact value of $\cos 45° \div \cos 30°$ Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	

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6 Solve the simultaneous equations $x + 4y = 3$ $5x + y = 34$	
7 A curve has equation $y = 2x^3 + 6x^2 + 11x + 2$. (a) Show that the curve has no stationary points. (b) Find the least value of the gradient of the curve.	
8 Machine A makes 25% 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 $f(x) = x^3 + kx^2 + 27x + 5$, where k is a constant. Given that f is an increasing function for all values of x, find the range of possible values of k.	
10 The price of a ticket is decreased by x%. The new price is then increased by x%. The final price is 25% less than the original price. Work out the value of x.	