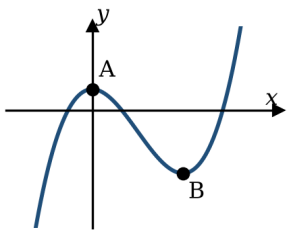
| Day 149 | A Level Maths: C Tier 10-a-day |
|---|---|
| **1** The point P(4, 1) lies on the curve y = f(x). Write down the coordinates of the image of P on (a) y = f(x − 2) (b) y = 3f(x) | |
| **2** Two forces of magnitudes 24 N and 10 N act on a bead at right angles to each other. Find (a) the magnitude of the resultant, (b) the angle it makes with the 24 N force, to 1 d.p. | |
| **3** Describe the single transformation that maps the graph of y = f(x) onto the graph of y = $f(\frac{x}{6})$. | |
| **4** Use the trapezium rule with 6 strips to estimate $\int_0^6 2^x \, dx$, giving your answer to 3 significant figures. | |
| **5** Here are 6 values: 11, 13, 5, 13, 2, 16 Find the mean and the standard deviation, to 3 s.f. | |

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**6** A particle of mass 8 kg slides from rest down a smooth plane inclined at angle α to the horizontal, where $\sin\alpha = \frac{4}{5}$. Take g = 9.8 m $s^{-2}$.
Find (a) its acceleration, (b) its speed after 2 s.

**7** The diagram shows the curve $y = x^3 - 3x^2 + 1$. A and B are turning points. Find the coordinates of A and B.




**8** Find the set of values of x satisfying both $2x + 3 < -3$ and $x^2 + 5x + 4 < 0$.

**9** Variables x and y satisfy $y = ab^x$. A graph of $\log_{10} y$ against x is a straight line with gradient 0.5 and intercept 0.3.
Find a and b to 3 significant figures.

**10** X ~ B(20, p). $H_0$: p = 0.4, $H_1$: p > 0.4.
Find the critical region for a test at the 1% significance level.