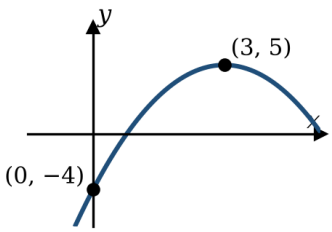
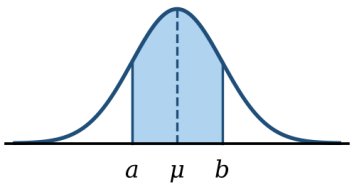
Day 179 **A Level Maths: C Tier 10-a-day**

1 The diagram shows a sketch of a quadratic curve.
Find its equation in the form $y = a(x - p)^2 + q$.



2 The diagram shows the density of X ~ N(125, 3^2).
a and b are equal distances from the mean.
The shaded area is 0.49.
Find P(X > b).



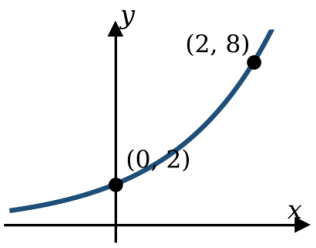
3 A is acute and $\sin A = \frac{4}{5}$.
Find the exact values of sin 2A and cos 2A.

4 A particle moves in a straight line. Its velocity at time t seconds is v m s^{-1}, where $v = 2t^2 - 4t + 5$.
(a) Find its acceleration when t = 4.
(b) Find the time when its acceleration is zero.

5 Solve $e^{3x + 2} = 50$.
Give your answer to 3 significant figures.

Day 179 **A Level Maths: C Tier 10-a-day**

6 The diagram shows the curve $y = ab^x$, where $b > 0$.
Find the values of a and b.



7 A brick is on the point of sliding down a rough plane inclined at α to the horizontal, where $\tan \alpha = \frac{12}{5}$. Find the coefficient of friction.

8 The probability that it rains is 0.5. If so, the probability that Sam is late is 0.5; otherwise it is 0.1.
Given that Sam is late, find the probability that it rains.

9 Write $\sqrt{50}$ in the form $p\sqrt{q}$, where q is an integer as small as possible.

10 Use the product rule to differentiate
$y = e^{2x} \sin 2x$.