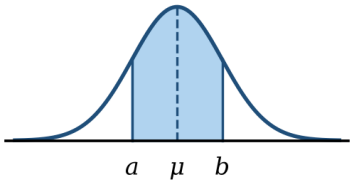
Day 359 **A Level Maths: C Tier 10-a-day**

1 Expand and simplify $(7 - \sqrt{2})^2$.

2 The diagram shows the density of X ~ N(60, 2^2).
a and b are equal distances from the mean.
The shaded area is 0.48.
Find P(X > b).



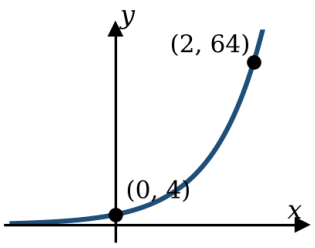
3 Find

(a) $\int (5\,e^x + \frac{2}{x})\,dx$

(b) $\int 10\,e^{2x}\,dx$

4 A bag has 6 red and 2 blue sweets. Two are taken at random without replacement.
Find the probability that they are both the same colour.

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



Day 359	A Level Maths: C Tier 10-a-day
6 A car moving in a straight line with constant acceleration increases its speed from 1 m s^{-1} to 7 m s^{-1} in 4 s. Find the distance it travels in this time.	
7 $\frac{6x + 14}{(x + 3)(x + 2)} \equiv \frac{A}{x + 3} + \frac{B}{x + 2}$. Find A and B, and hence find $\int \frac{6x + 14}{(x + 3)(x + 2)}\, dx$.	
8 Rationalise the denominator of $\frac{6}{2 - \sqrt{10}}$. Write your answer in the form $p + q\sqrt{10}$.	
9 A ball of weight 20 N hangs from a light string, pulled aside by a horizontal force P N so that the string makes an angle θ with the vertical, where $\tan\theta = \frac{3}{4}$. Find P and the tension T N.	
10 A farmer has 80 m of fencing for three sides of a rectangular pen; the fourth side is a wall. Find the maximum area of the pen.	