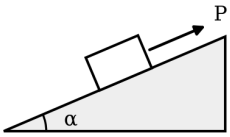
Day 260	A Level Maths: C Tier 10-a-day
1 Two cyclists start at the same time from points A and B, 154 m apart, and cycle directly towards each other at constant speeds of 6 m s^{-1} and 8 m s^{-1}. Find the time until they meet.	
2 Find $\int \cos(4x + 1)\, dx$.	
3 The point P(−5, −5) lies on the curve y = f(x). Write down the coordinates of the image of P on (a) y = f(x + 5) (b) y = f(−x)	
4 The mean of 45 ages of the men is 80. The mean of 45 ages of the women is 69. Find the mean of all 90 values.	
5 £250 invested at 5% compound interest per year. After how many whole years will it first exceed £750?	

Day 260 **A Level Maths: C Tier 10-a-day**

6 Simplify $(4x^4)^3 \div 2x^2$.

7 A particle of mass 65 kg rests on a smooth plane inclined at α to the horizontal, where $\tan \alpha = \frac{5}{12}$.
It is held by a force P N up the slope. Take g = 9.8 m s^{-2}. Find P and the normal reaction.



8 X ~ B(60, 0.5). Find E(X) and Var(X).

9 f(x) = 21 sin x + 20 cos x + 5.
Write f(x) in the form R sin(x + α) + 5, with α in degrees to 1 d.p., and state the maximum value of f(x).

10 Evaluate $\sum_{r=1}^{14} (5r + 3)$.