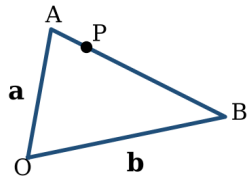
Day 132	A Level Maths: C Tier 10-a-day
1 Solve $\log_5 x = 2$.	
2 X ~ B(20, 0.3). Find E(X) and Var(X).	
3 A car of mass 1200 kg tows a caravan of mass 500 kg on a level road with acceleration 0.75 m s^{-2}. Resistances: 300 N on the car, 150 N on the caravan. Find the driving force and the tow bar tension.	
4 A curve has parametric equations $x = 4t - 4$, $y = 2t^2 - 5$. Find the coordinates of the point where $t = 1$.	
5 The mean of 15 ages of the men is 34. The mean of 30 ages of the women is 37. Find the mean of all 45 values.	

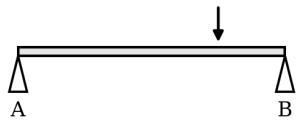
Day 132 **A Level Maths: C Tier 10-a-day**

6 In the diagram, OA = $\mathbf{a}$, OB = $\mathbf{b}$, and P lies on AB with AP : PB = 1 : 4.
Find AB and OP in terms of $\mathbf{a}$ and $\mathbf{b}$.



7 Solve $|x + 5| = 7$.

8 A uniform beam AB of mass 20 kg and length 6 m rests horizontally on supports at A and B. A load of mass 20 kg is placed on the beam 4.5 m from A. Take g = 9.8 m s^{-2}. Find the reaction at B.



9 Prove by contradiction that if 3n + 2 is even, then n is even, where n is an integer.

10 $\frac{2x}{(x+3)(x+1)} \equiv \frac{A}{x+3} + \frac{B}{x+1}$.

Find A and B, and hence find $\int \frac{2x}{(x+3)(x+1)}\,dx$.