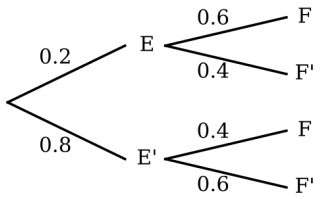
Day 188	A Level Maths: B Tier 10-a-day
1 Solve $e^{5x} = 34$, giving your answer to 3 s.f.	
2 A geometric series has first term 8 and common ratio 2. Find the smallest value of n for which the sum of the first n terms exceeds 10000.	
3 Given that $y = (x + 2)e^{-2x}$, find $\frac{dy}{dx}$, and its value when $x = 0$.	
4 A particle of mass 3 kg is acted on by forces $(-6\mathbf{i} - 3\mathbf{j})$ N and $\mathbf{P}$ N only. Its acceleration is $(3\mathbf{i} + \mathbf{j})$ m s^{-2}. Find $\mathbf{P}$, and its magnitude to 3 significant figures.	
5 Prove that if n is odd then $n^2 + 5n + 6$ is even.	

Day 188	A Level Maths: B Tier 10-a-day
6 A stone is thrown horizontally at 13 m s^{-1} from the top of a cliff 44.1 m above level ground. Take g = 9.8 m s^{-2}. Find the time of flight and the horizontal distance from the base where it lands.	
7 The tree diagram shows probabilities for event E, followed by event F. Find the probability that exactly one of E and F occurs. 	
8 Solve $2\tan^2 x - 3\sec x - 3 = 0$ for $0 \leq x \leq 360°$, giving answers to 1 d.p.	
9 X ~ B(40, p). H_0: p = 0.25 is to be tested against H_1: p < 0.25 at the 1% significance level. Find the critical region and the actual significance level.	
10 The line y = 3x + 7 meets the circle $(x + 3)^2 + (y - 3)^2 = 65$ at the points A and B. Find the coordinates of A and B, and the exact length of the chord AB.	