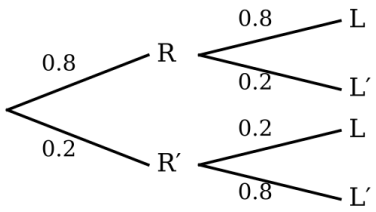
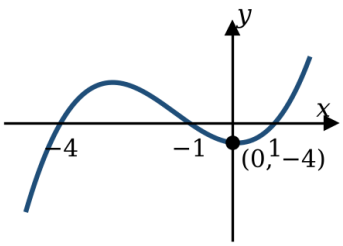
Day 192	A Level Maths: C Tier 10-a-day
1 The number of bacteria is $N = 200\,e^{0.04t}$, where t is the time in hours. Find (a) N when t = 20, (b) the time when N = 600. Give answers to 3 s.f.	
2 Solve $x^2 + 2x - 2 = 0$, giving your answers in the form $p \pm \sqrt{q}$.	
3 By writing 15° as 45° − 30°, find the exact value of cos 15°.	
4 A train moving in a straight line has initial speed 0 m s^{-1} and constant acceleration 0.5 m s^{-2}. Find its speed after 5 s.	
5 Find the range of values of k for which $kx^2 + 8x + 9 = 0$ has real roots.	

Day 192 **A Level Maths: C Tier 10-a-day**

6 The tree diagram shows probabilities for events R and L.
Find the probability that L happens.



7 The diagram shows the curve y = f(x), where f(x) is a cubic. Find f(x) in the form k(x − a)(x − b)(x − c).



8 A is acute and cos A = $\frac{12}{13}$.
Find the exact values of sin 2A and cos 2A.

9 A car decelerates uniformly from 10 m s^{-1} to rest in 8 s. Find (a) the deceleration, (b) the distance travelled while decelerating.

10 9 runners take part in a race. In how many ways can the first 3 places be filled?