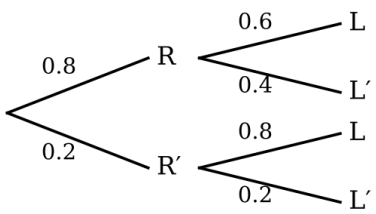
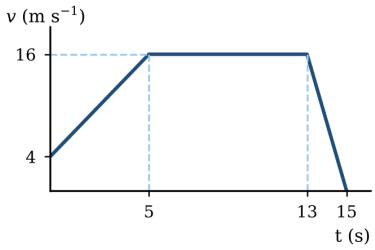
| Day 45 | A Level Maths: C Tier 10-a-day |
|---|---|
| **1** Expand $(1 - 2x)^{\frac{1}{2}}$ in ascending powers of x up to and including the term in $x^2$. State the range of values of x for which the expansion is valid. | |
| **2** Find the gradient of the curve $y = (x^2 + 2)^2$ at the point where $x = 0$. | |
| **3** Evaluate $25^{\frac{3}{2}}$. | |
| **4** £2000 invested at 4% compound interest per year.<br>After how many whole years will it first exceed £6000? | |
| **5** The tree diagram shows probabilities for events R and L.<br>Find the probability that exactly one of R and L happens.<br> | |

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|---|---|

**6** The graph shows the velocity of a runner.
(a) Find the acceleration in the first 5 s.
(b) Find the deceleration in the last 2 s.
(c) Find the total distance travelled.




**7** A circle has equation $(x + 2)^2 + (y + 1)^2 = 25$.
Determine whether the point P(8, 5) is inside, outside or on the circle.

**8** $x = 4t^2 + 3$, $y = 3t^3 - t$.
Find dy/dx in terms of t, and its value when t = 2.

**9** Two forces of magnitudes 6 N and 8 N act on a small ring at right angles to each other. Find (a) the magnitude of the resultant, (b) the angle it makes with the 6 N force, to 1 d.p.

**10** The probability that a patient takes the drug is 0.2. If so, the probability that the patient recovers is 0.7; otherwise it is 0.5.
Given that the patient recovers, find the probability that a patient takes the drug.