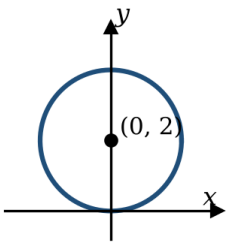
Day 325	A Level Maths: C Tier 10-a-day

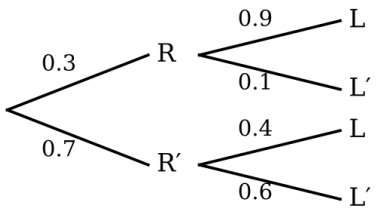
1 The diagram shows a circle with the centre marked.
The circle touches the x-axis. Find the equation of the circle.



2 Find the exact value, in radians, of
(a) $\arccos(\frac{1}{2})$ (b) $\arccos(1)$

3 Describe the single transformation that maps the graph of y = f(x) onto the graph of y = $\frac{1}{6}$f(x).

4 The tree diagram shows probabilities for events R and L.
Find the probability that exactly one of R and L happens.



5 A lorry's engine works at a constant rate of 12 kW. Find the driving force when the vehicle is moving at 10 m s^{-1}.

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6 Given that $dy/dx = 4x^2$ and $y = 2$ when $x = 0$, find y in terms of x.	
7 The line $y = -x + k$ is a tangent to the curve $y = x^2 + 3x - 4$. Find the value of k.	
8 $f(x) = x^3 + 4x - 6$. Show that $f(x) = 0$ has a root between $x = 1$ and $x = 1.5$.	
9 The continuous random variable X has probability density function $f(x) = kx$ for $0 \leq x \leq 3$, and 0 otherwise. Find the value of k.	
10 A train starts from rest and accelerates uniformly at 2 m s^{-2} for 10 s, then travels at constant speed for a further 10 s. Find the total distance travelled.	