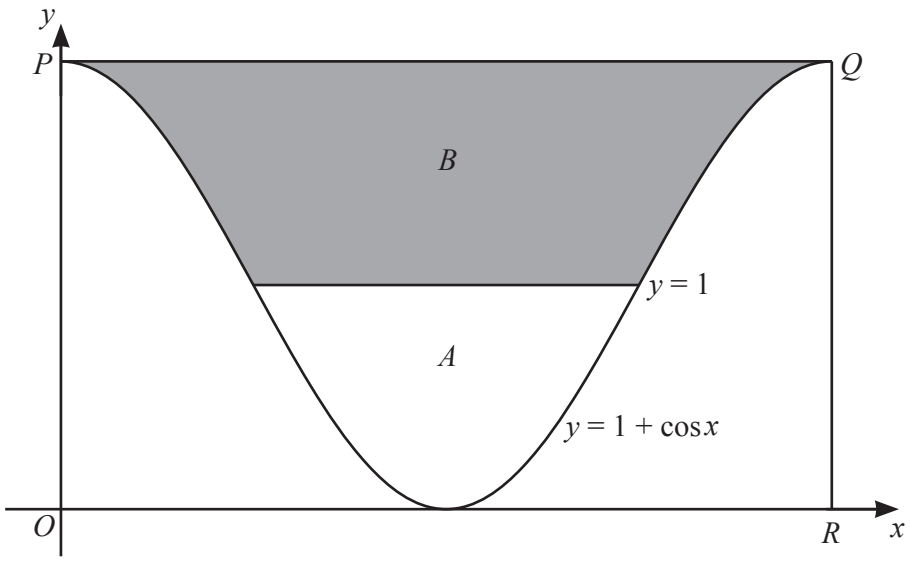
**11**




The diagram shows part of the line $y = 1$ and one complete period of the curve $y = 1 + \cos x$, where $x$ is in radians. The line $PQ$ is a tangent to the curve at $P$ and at $Q$. The line $QR$ is parallel to the $y$-axis. Area $A$ is enclosed by the line $y = 1$ and the curve. Area $B$ is enclosed by the line $y = 1$, the line $PQ$ and the curve.

Given that area $A$ : area $B$ is $1 : k$ find the exact value of $k$. [9]

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Continuation of working space for Question 11.

**Question 12 is printed on the next page.**

**12** A curve is such that $\frac{d^2y}{dx^2} = \left(\frac{\sqrt{x}+1}{\sqrt[4]{x}}\right)^2$. Given that the gradient of the curve is $\frac{4}{3}$ at the point $(1, -1)$, find the equation of the curve. [7]

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