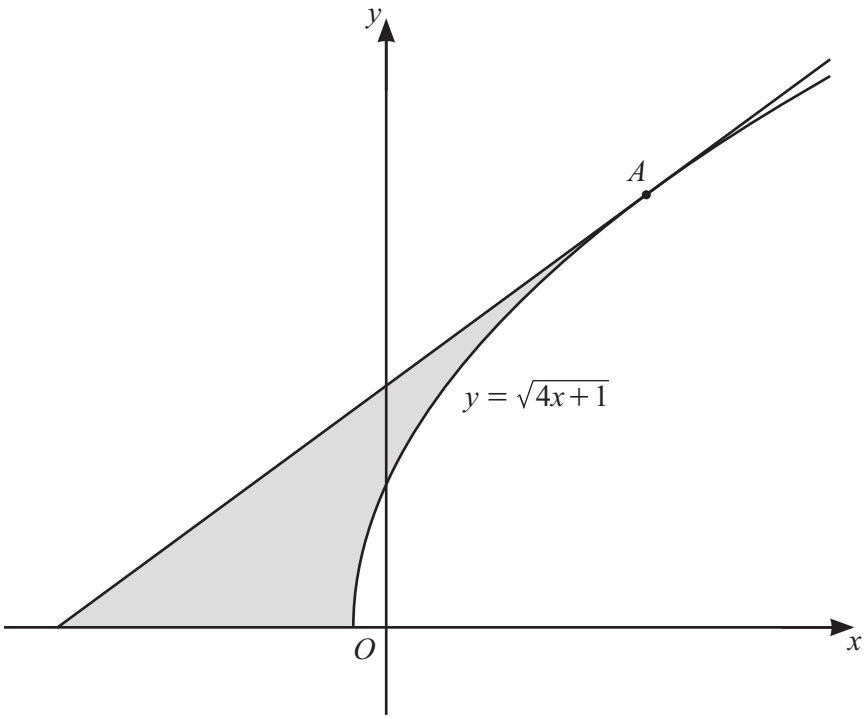
9



The point A with x-coordinate 2 lies on the curve $y = \sqrt{4x+1}$.
The diagram shows part of this curve and the tangent to the curve at A.

Find the area of the shaded region enclosed by the curve, the tangent and the x-axis. [10]

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Continuation of working space for Question 9.

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10 **(a)** Given that $0 \leqslant \theta < \frac{\pi}{2}$, show that $\frac{\sin\theta}{\sqrt{\text{cosec}^2\theta - 1}} + \frac{1}{\sqrt{1+\tan^2\theta}}$ can be written as $\sec\theta$. [4]

(b) Given that $\sec x = \alpha$, where $\frac{3\pi}{2} < x \leqslant 2\pi$, find $\sin x$ in terms of α. [3]

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