The right-angled triangle in the diagram is such that $\sin x = \dfrac{2}{\sqrt{11}}$ and $0 < x < \dfrac{\pi}{4}$.
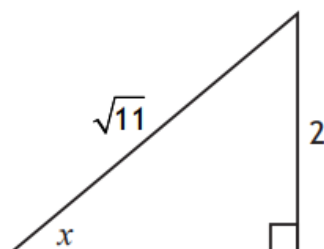
(a) Find the exact value of:

  (i) $\sin 2x$ **3**

  (ii) $\cos 2x$.   **1**

(b) By expressing $\sin 3x$ as $\sin(2x + x)$, find the exact value of $\sin 3x$.   **3**

Answers:

(a) (i) $\dfrac{4\sqrt{7}}{11}$

   (ii) $\dfrac{3}{11}$

(b) $\dfrac{34}{11\sqrt{11}}$