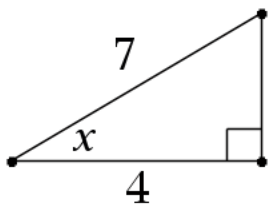1. Given that $\cos x = \frac{4}{7}$, where x is an acute angle

    (a) Find the value of $\sin x$ (4 marks)

    (b) Find the value of $\sin 2x$ (3 marks)

Mark scheme:

(a)

$7^2 = 4^2 + b^2$ (M1)

$49 = 16 + b^2$ (A1)

$33 = b^2$

$b = \sqrt{33}$ (M1)

$\sin x = \dfrac{\sqrt{33}}{7}$ (A1)

(b) $\sin 2x = 2 \sin x \cos x$ (M1)

$\sin 2x = 2 \left(\dfrac{\sqrt{33}}{7} \right) \left(\dfrac{4}{7} \right)$ (M1)

$\sin 2x = \dfrac{8\sqrt{33}}{49}$ (A1)