1   **(i)** Starting with an equilateral triangle, prove that $\cos 30° = \dfrac{\sqrt{3}}{2}$.   [2]

     (ii) Solve the equation $2 \sin \theta = -1$ for $0 \leqslant \theta \leqslant 2\pi$, giving your answers in terms of π.   [3]

2   Use an isosceles right-angled triangle to show that $\cos 45° = \dfrac{1}{\sqrt{2}}$.   [2]

3   **(i)** On the same axes, sketch the graphs of $y = \cos x$ and $y = \cos 2x$ for values of x from 0 to 2π.   [3]

     (ii) Describe the transformation which maps the graph of $y = \cos x$ onto the graph of $y = 3 \cos x$.   [2]

4   θ is an acute angle and $\sin \theta = \frac{1}{4}$. Find the exact value of $\tan \theta$.   [3]

5   **(i)** Sketch the graph of $y = \cos x$ for $0° \leqslant x \leqslant 360°$.

     On the same axes, sketch the graph of $y = \cos 2x$ for $0° \leqslant x \leqslant 360°$. Label each graph clearly.   [3]

     (ii) Solve the equation $\cos 2x = 0.5$ for $0° \leqslant x \leqslant 360°$.   [2]

6   **(i)** Sketch the graph of $y = \sin \theta$ for $0 \leqslant \theta \leqslant 2\pi$.   [2]

     (ii) Solve the equation $2 \sin \theta = -1$ for $0 \leqslant \theta \leqslant 2\pi$. Give your answers in the form $k\pi$.   [3]

7   Sketch the curve $y = \sin x$ for $0° \leqslant x \leqslant 360°$.

Solve the equation $\sin x = -0.68$ for $0° \leqslant x \leqslant 360°$.   [4]

8   **(i)** Sketch the graph of $y = \tan x$ for $0° \leqslant x \leqslant 360°$.   [2]

(ii) Solve the equation $4 \sin x = 3 \cos x$ for $0° \leqslant x \leqslant 360°$.   [3]

9   Sketch the graph of $y = \sin x$ for $0° \leqslant x \leqslant 360°$.

Solve the equation $\sin x = -0.2$ for $0° \leqslant x \leqslant 360°$.   [4]