Leave blank

4. (a) Show that the equation

$$3 \sin^2 \theta - 2 \cos^2 \theta = 1$$

can be written as

$$5 \sin^2 \theta = 3.$$

(2)

(b) Hence solve, for $0° \leqslant \theta < 360°$, the equation

$$3 \sin^2 \theta - 2 \cos^2 \theta = 1,$$

giving your answers to 1 decimal place.

(7)

Leave blank

9. Solve, for $0 \leqslant x < 360°$,

(a) $\sin(x - 20°) = \dfrac{1}{\sqrt{2}}$ **(4)**

(b) $\cos 3x = -\dfrac{1}{2}$ **(6)**

Leave blank

8. (a) Show that the equation

$$4\sin^2 x + 9\cos x - 6 = 0$$

can be written as

$$4\cos^2 x - 9\cos x + 2 = 0.$$

(2)

(b) Hence solve, for $0 \leqslant x < 720°$,

$$4\sin^2 x + 9\cos x - 6 = 0,$$

giving your answers to 1 decimal place.

(6)

Leave blank

7. (i) Solve, for $-180° \leqslant \theta < 180°$,

$$\left(1+\tan\theta\right)\left(5\sin\theta-2\right)=0.$$

(4)

(ii) Solve, for $0 - x < 360°$,

$$4\sin x = 3\tan x.$$

(6)

Leave blank

2. (a) Show that the equation

$$5\sin x = 1 + 2\cos^2 x$$

can be written in the form

$$2\sin^2 x + 5\sin x - 3 = 0$$

(2)

(b) Solve, for $0 \leqslant x < 360°$,

$$2\sin^2 x + 5\sin x - 3 = 0$$

(4)

Q2

(Total 6 marks)

Leave blank

5. (a) Given that $5\sin\theta = 2\cos\theta$, find the value of $\tan\theta$.

(1)

(b) Solve, for $0 \leqslant x < 360°$,

$$5\sin 2x = 2\cos 2x,$$

giving your answers to 1 decimal place.

(5)