

Show all working – Calculator required.

<u>Marks</u>

1. Put the following in ascending order. Give a reason for your answer. (No calculator allowed)

 $\sin 60^{\circ} \quad \cos 180^{\circ} \quad \tan 180^{\circ} \quad \sin 330^{\circ} \quad \cos 0^{\circ} \tag{3}$

- 2. Write down the period and amplitude of the following:
 - **a)** $y = 3\cos 2x^{\circ}$ (**b**) $y = 2\sin 5x^{\circ}$ (**c**) $y = 4\cos \frac{1}{2}x^{\circ}$ (**6**)
- 3. Solve the following equations for $0^{\circ} \le x^{\circ} \le 360^{\circ}$:
 - **a)** $\sin x^{\circ} = 0.839$ (**b**) $4\cos x^{\circ} + 7 = 6$ (**c**) $\tan^2 x^{\circ} = 25$ (8)
- 4. Prove the following identities:

a)
$$(\sin x^{\circ} + \cos x^{\circ})^2 = 1 + 2 \sin x^{\circ} \cos x^{\circ}$$
 (**b**) $\tan x^{\circ} \times \sin x^{\circ} = \frac{1}{\cos x^{\circ}} - \cos x^{\circ}$ (**6**)

Total Marks: 23