

3 Jia has to solve the equation

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

where  $-180^\circ \leq \theta \leq 180^\circ$

Jia's working is as follows:

$$2 - 2(1 - \cos^2 \theta) = \cos \theta$$

$$2 - 2 + 2 \cos^2 \theta = \cos \theta$$

$$2 \cos^2 \theta = \cos \theta$$

$$2 \cos \theta = 1$$

$$\cos \theta = 0.5$$

$$\theta = 60^\circ$$

Jia's teacher tells her that her solution is incomplete.

3 (a) Explain the **two** errors that Jia has made.

[2 marks]

3 (b) Write down all the values of  $\theta$  that satisfy the equation

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

where  $-180^\circ \leq \theta \leq 180^\circ$

[2 marks]