

8. (a) Shade on an Argand diagram the set of points

$$\left\{ z \in \mathbb{C} : |z - 4i| \leq 3 \right\} \cap \left\{ z \in \mathbb{C} : -\frac{\pi}{2} < \arg(z + 3 - 4i) \leq \frac{\pi}{4} \right\}$$

(6)

The complex number w satisfies

$$|w - 4i| = 3$$

(b) Find the maximum value of $\arg w$ in the interval $(-\pi, \pi]$.

Give your answer in radians correct to 2 decimal places.

(2)