

Question 11**(5 marks)**

Let z , w and u be complex numbers where:

$$w = (1 + i)\bar{z} \quad \text{Arg}(w) = \frac{\pi}{3} \quad |w| = 2$$

$$u = \frac{z}{2 - 2i}$$

(a) Determine $\text{Arg}(u)$ exactly.

(3 marks)

(b) Determine $|u|$ exactly.

(2 marks)