

Question

3. The complex number z is defined by

$$z = \frac{a+2i}{a-i}, \quad a \in \mathbb{R}, \quad a > 0.$$

Given that the real part of z is $\frac{1}{2}$, find

- (a) the value of a ,
- (b) the argument of z , giving your answer in radians to 2 decimal places.