

- 1 The complex number z is defined by $z = \frac{8 + pi}{p - 4i}$, $p \in \mathbb{R}$. Given that the real part of z is $\frac{2}{5}$,
- a find the possible values of p . **(4 marks)**
 - b Write the possible values of z in the form $a + bi$, where a and b are real. **(1 mark)**
 - c Show your answer to part **b** on an Argand diagram. **(1 mark)**

- 2 $z = \frac{4}{1+i}$
- a Find z in the form $a + bi$, where a and b are real. **(2 marks)**
 - b Given that z is a complex root of the quadratic equation $px^2 + qx + r = 0$, where p , q and r are integers find possible values of p , q and r . **(4 marks)**