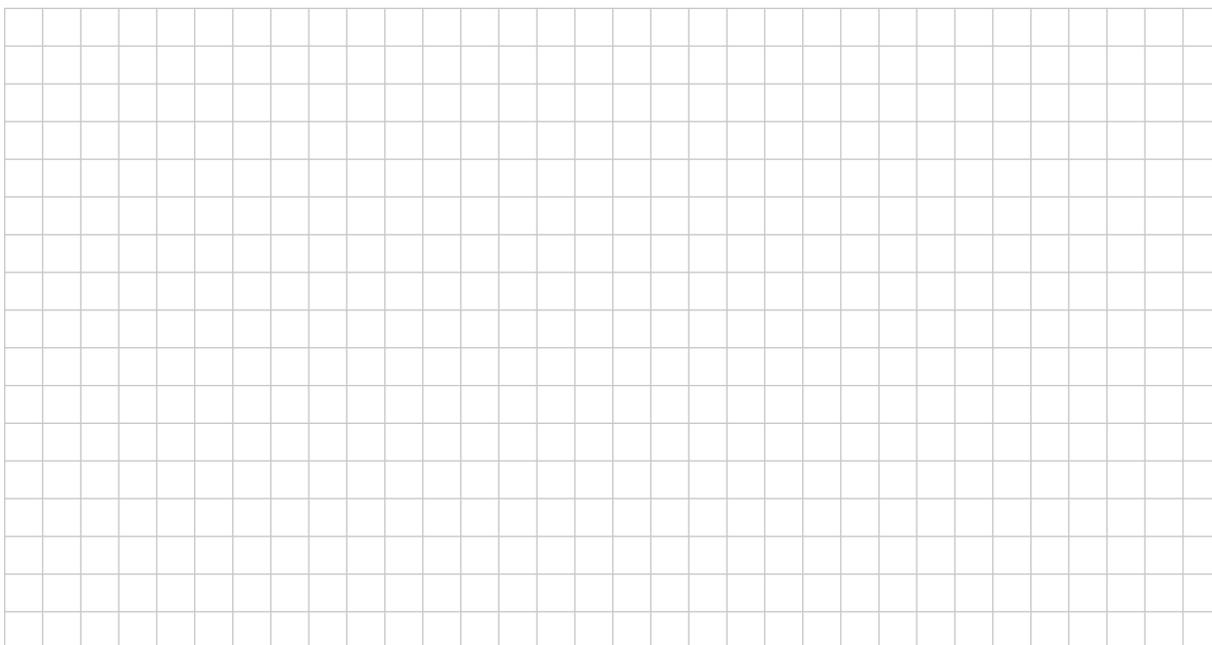


Question 2

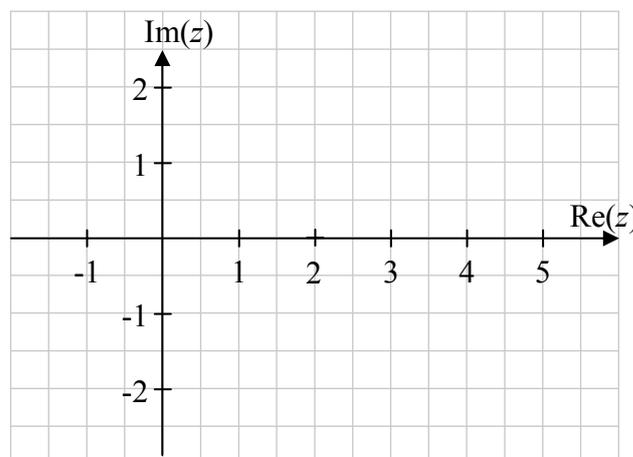
(25 marks)

Let $z_1 = 1 - 2i$, where $i^2 = -1$.

- (a) The complex number z_1 is a root of the equation $2z^3 - 7z^2 + 16z - 15 = 0$.
Find the other two roots of the equation.



- (b) (i) Let $w = z_1 \bar{z}_1$, where \bar{z}_1 is the conjugate of z_1 . Plot z_1 , \bar{z}_1 and w on the Argand diagram and label each point.



- (ii) Find the measure of the acute angle, $\bar{z}_1 w z_1$, formed by joining \bar{z}_1 to w to z_1 on the diagram above. Give your answer correct to the nearest degree.

