

# PROBLEM SHEET 11

(1) (a)  $8 + 4i$

(b)  $4 + 16i$

(c)  $\frac{19}{29} + \frac{4}{29}i$

(d)  $\frac{11}{5} - \frac{4}{5}i$

(e)  $\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}i$

(f)  $2i$

(g)  $8 - 8i$

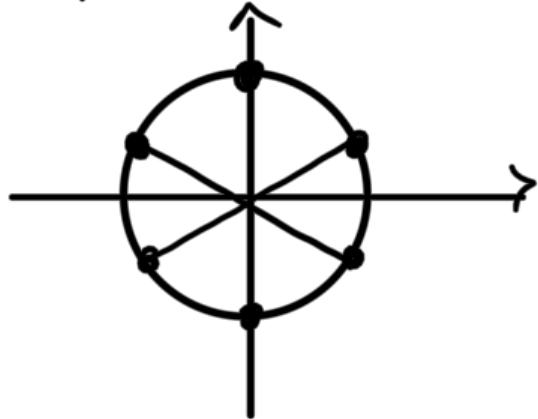
(h)  $-\frac{1}{4} - \frac{1}{4}i$

(i)  $2^{10} \left( \frac{1}{2} + \frac{\sqrt{3}}{2}i \right)$

(2)  $z_0 = a \left( \frac{\sqrt{3}}{2} + \frac{1}{2}i \right)$

$$z_2 = a \left( -\frac{\sqrt{3}}{2} + \frac{1}{2}i \right)$$

$$z_4 = -ai$$



(3) proof

$$z_2 = ai$$

$$z_3 = a \left( -\frac{\sqrt{3}}{2} - \frac{1}{2}i \right)$$

$$z_5 = a \left( \frac{\sqrt{3}}{2} - \frac{1}{2}i \right)$$