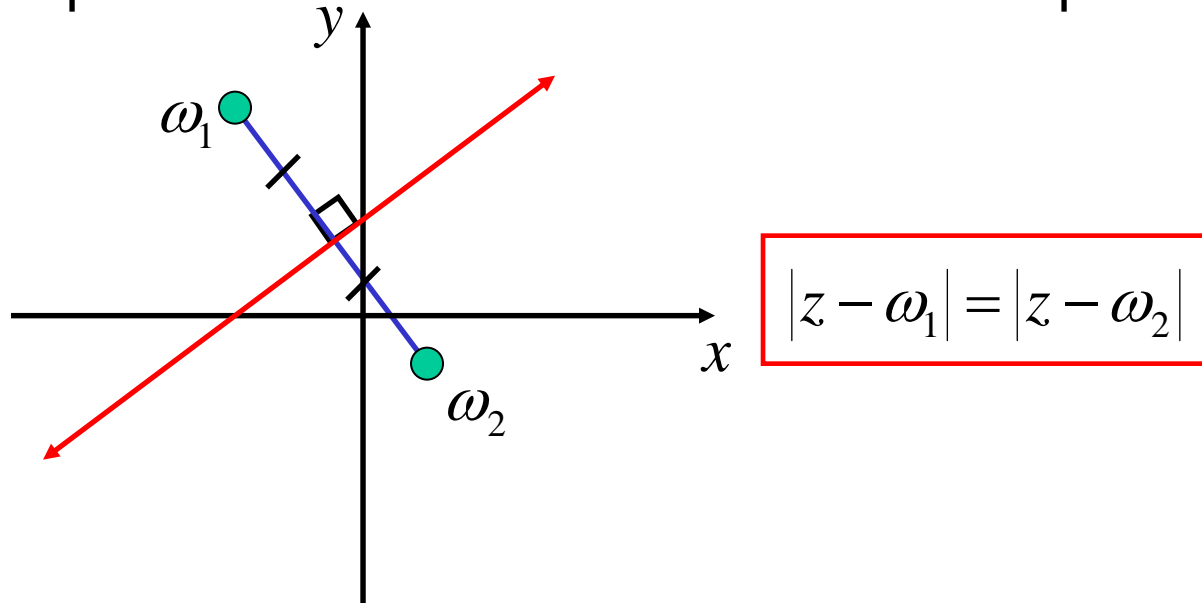
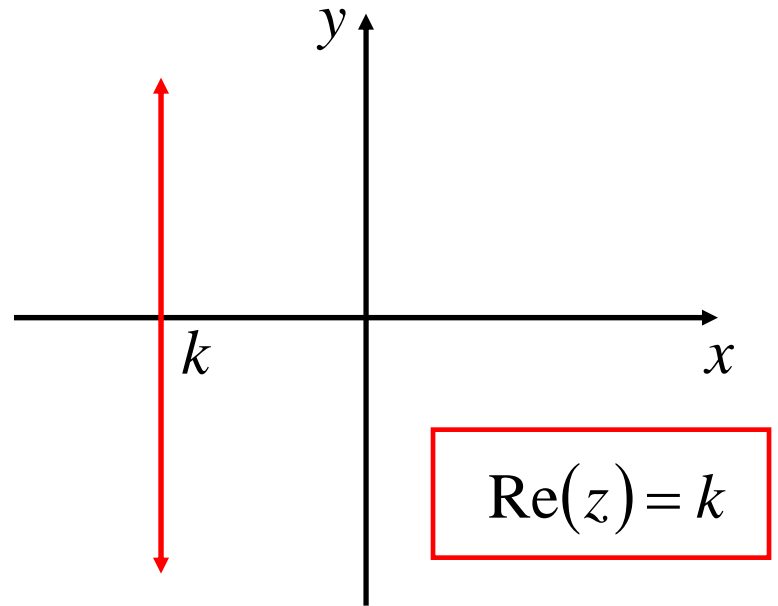
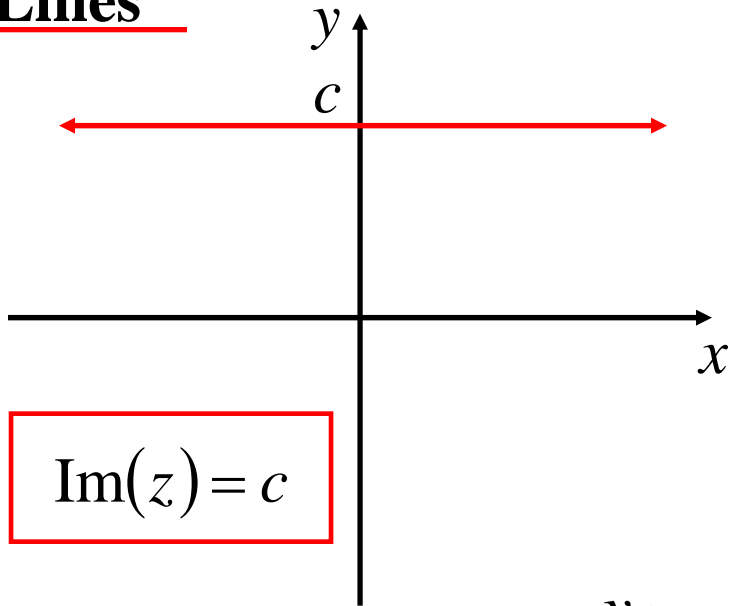


Locus and Complex Numbers

Lines



$$\text{e.g. } |z - 1 - i| = |z + 2 + i|$$

$$(x - 1)^2 + (y - 1)^2 = (x + 2)^2 + (y + 1)^2$$

$$x^2 - 2x + 1 + y^2 - 2y + 1 = x^2 + 4x + 4 + y^2 + 2y + 1$$

$$\underline{6x + 4y + 3 = 0}$$

OR \perp bisector of $(1,1)$ and $(-2,-1)$

$$M = \left(\frac{1-2}{2}, \frac{1-1}{2} \right) \quad m = \frac{1+1}{1+2}$$

$$= \left(-\frac{1}{2}, 0 \right) \quad = \frac{2}{3}$$

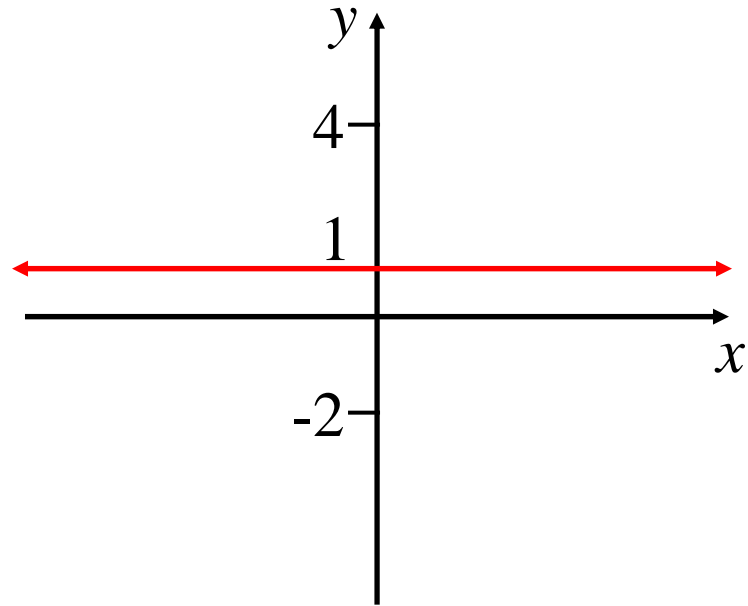
\therefore required slope is $-\frac{3}{2}$

$$y - 0 = -\frac{3}{2} \left(x + \frac{1}{2} \right)$$

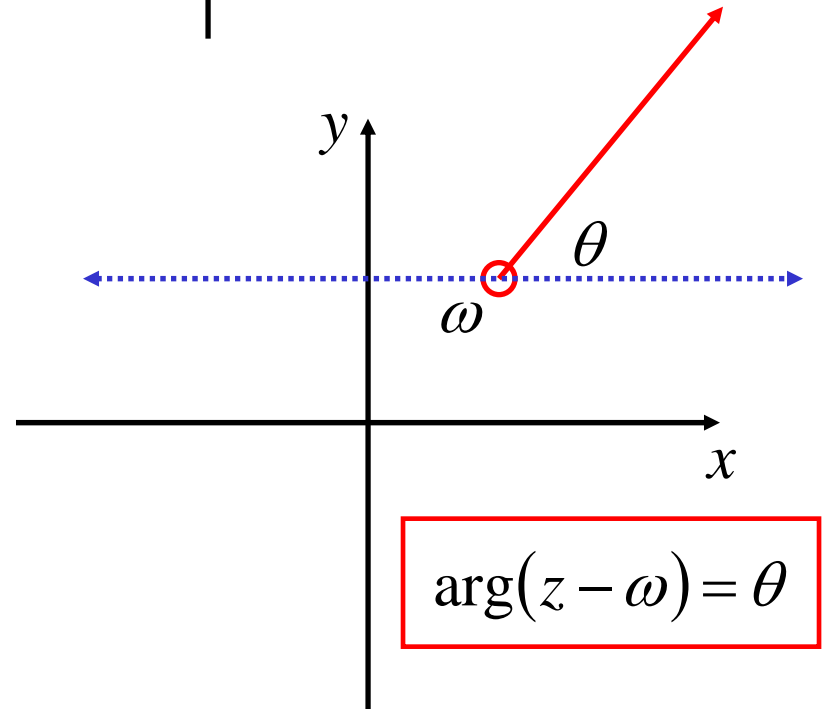
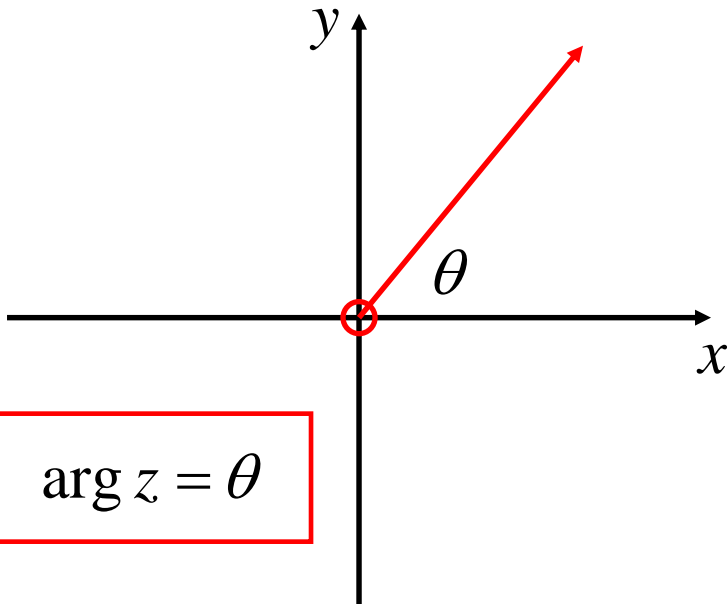
$$2y = -3x - \frac{3}{2}$$

$$\underline{6x + 4y + 3 = 0}$$

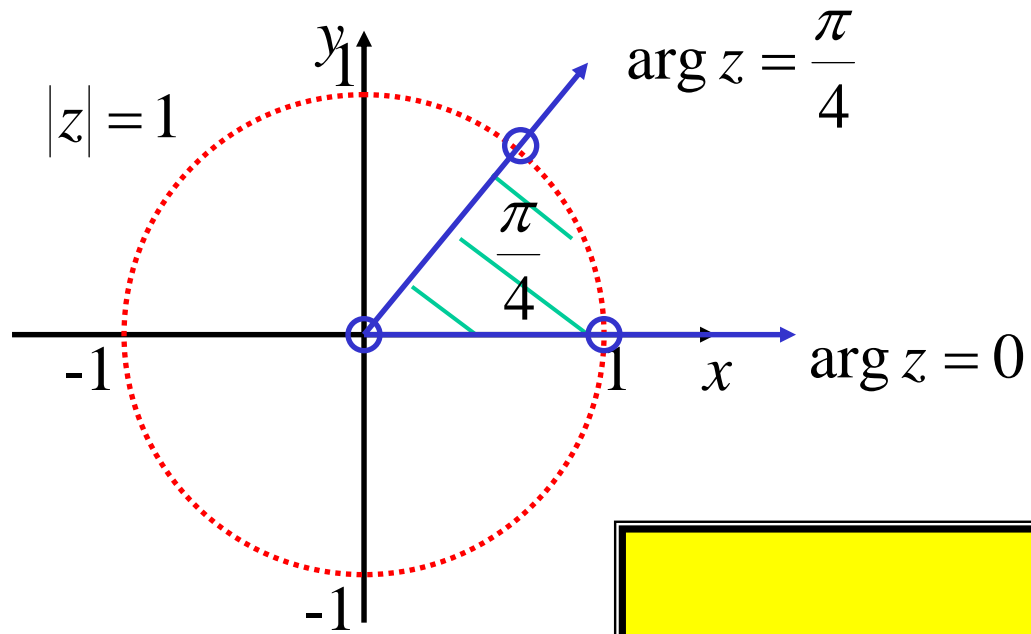
(ii) Sketch $|z + 2i| = |z - 4i|$



Rays



e.g. $|z| < 1$ and $0 \leq \arg z \leq \frac{\pi}{4}$



Exercise 4N; 1a to j, 2ace, 3ace etc, 4ace