Ex 1 Find all $z \in \mathbb{C}$ which satisfy

$$2z + 3\overline{z} - \frac{2 + i}{3 - 2i} = 0.$$

Ex 2 Find all $z \in \mathbb{C}$ which satisfy

$$2z^4 - (5 + i)z^2 + 4 + 2i = 0.$$

Ex 3 Describe and draw the set of all $z \in \mathbb{C}$ which satisfy

$$|z - (2 + i)| = 3.$$

Hint: think about this problem in terms of vectors and geometry.

Ex 4 Compute $\cos(\pi/12)$ and $\sin(\pi/12)$ WITHOUT using any trig identities. *Hint*: use the fact that

$$e^{i\pi/12} = \cos(\pi/12) + i\sin(\pi/12)$$

alongside the fact that $e^{i\pi/12}$ is a square root of $e^{i\pi/6}$.