

1. Find the polar representations of the following
 - a. $z_1 = 1+i$
 - b. $z_2 = -1+i$
 - c. $z_3 = 3+4i$
 - d. $z_4 = -6-12i$
 - e. $z_5 = -5+8i$

2. Find the Cartesian forms of the following
 - a. $5e^{i\pi/3}$
 - b. $20e^{i4\pi/3}$
 - c. $0.4e^{2.45i}$

3. If $z^6 = 64i$, find z .

4. If $z^3 + 6z^2 + 12z + 8 = (-1+i)/\sqrt{2}$, find z .

5. Solve the equation $z^2 - (2-3i)z + 10 + 24i = 0$ (This question is from last week. We can now find the solution using polar notation. Start with the partial answer from last week, and try to evaluate the square root part of the quadratic equation.)

It can help to use the trig identities

$$\cos(\phi) = 2 \cos^2\left(\frac{\phi}{2}\right) - 1 = 1 - 2 \sin^2\left(\frac{\phi}{2}\right)$$