Problem 1: Find the Cartesian coordinates of points whose polar coordinates are as follows:-

$$(3, -\pi/3) \quad , \quad (-2, 3\pi/2) \quad , \quad (-1, 5\pi/4)$$

Problem 2: Find the polar coordinates of points whose Cartesian coordinates are as follows:-

$$(-4, 4) \quad , \quad (\sqrt{3}, -1) \quad , \quad (-6, 0)$$

Problem 3: Identify the curves by finding their Cartesian equations.

1. $r = 4 \sec \theta$
2. $r = 5 \cos \theta$
3. $r^2 \cos 2\theta = 1$

Problem 4: Find a polar equation of the curve whose Cartesian equation is as follows:-

1. $4y^2 = x$ (a parabola)
2. $x^2 + 4y^2 - 2x = 3$ (an ellipse)
3. $x^2 + y^2 = 2x$ (a circle)

Problem 5: Evaluate the following expressions and write your answers in the form $a + bi$.

1. $\dfrac{1+i}{1-i}$
2. $\overline{2i(1-i)}$
3. i^{103}
4. $\sqrt{-3}\sqrt{-12}$