

**SANGAM SKM COLLEGE NADI**  
**YEAR 13 MATHEMATICS**  
**WORKSHEET 1: WEEK 2 - COMPLEX NUMBERS**

1. **Solve**  $9x^2 + 25 = 0$ ,  $x \in \mathbb{Z}$ .
  
2. **Find the values of x and y** in the equation:  $x + yi = \frac{1}{3 - 4i}$
  
3. If  $v = 2 + 3i$  and  $w = 5 + 4i$ , **find**:
  - a)  $v + w$
  - b)  $w - v$
  - c)  $\overline{v}$
  
4. A complex number is given as  $w = \sqrt{12} + 2i$ 
  - a) **Find**  $|w|$
  - b) **Find**  $\text{Arg}(w)$
  - c) **Convert**  $w$  into **polar form**
  - d) Hence, **evaluate**  $w^3$  using **De Moivre's Theorem**.
  
5. **Solve** the equation  $z^2 = 64(\cos 90^\circ + i90^\circ)$ .  
**Express** your answer in **rectangular form**.
  
6. In the complex plane, **shade** the region where  $-2 < \text{Re}(z) \leq 1$ .

