1. Simplify the following expressions to the form $a + bi$:

   (a) $(3 - i)(2 + 5i)$
   (b) $\frac{3 - i}{2 + 5i}$
   (c) $(-5 + 12i)(-5 + 12i)$

2. Let $n$ be a fixed positive integer. For which values of $r \geq 0$ and $0 \leq \theta < 2\pi$ does the complex number $z = r(\cos \theta + i \sin \theta)$ satisfy $z^n = 1$?