Practice worksheet | Complex Numbers

# De Moivre's theorem

Name: _____ Date: _____

6 questions | 14 marks

**1.** Calculate $(\sqrt{3}+i)^3$. [2 marks]

**2.** Calculate $(1-i)^6$. [2 marks]

**3.** Write $(2\text{cis}(\frac{\pi}{3}))^{-2}$ in polar form. [2 marks]

**4.** Use de Moivre and a square expansion to obtain a formula for $\cos 2\theta$. [3 marks]

**5.** Show that $(\text{cis}(\frac{\pi}{5}))^{10} = 1$. [2 marks]

**6.** Find the least positive integer $n$ for which $(\text{cis}(\frac{2\pi}{7}))^n = 1$. [3 marks]