Name _____ Date _____

Year Group _____

Use De Moivre's Theorem to transform the complex number to the form a + bi

1. $\left(3+\sqrt{3}i\right)^4$

Find the modulus and the argument

$$a^2+b^2=c^2 \qquad \tan\theta=\frac{b}{a}$$

Steps => $___^2+\left(\sqrt{___}\right)^2=c^2$ $\qquad \tan\theta=\frac{\sqrt{___}}{___}$

Steps => $___+___=c^2$

Steps => $___=c^2$ $\qquad \theta=\tan^{-1}\left(\frac{\sqrt{___}}{___}\right)$

Steps => $c=___*\sqrt{___}$

Find the modulus and the argument

$$z=r^n*[\cos(n\theta)+i*\sin(n\theta)]$$

Steps => $z=\left(___*\sqrt{___}\right)^{_}*\left[\cos\left(___*\frac{\pi}{___}\right)+i*\sin\left(___*\frac{\pi}{___}\right)\right]$

Steps => $z=___*\left[\cos\left(\frac{___\pi}{___}\right)+i*\sin\left(\frac{___\pi}{___}\right)\right]$

Steps => $z=___*\left[-\frac{___}{___}+i*\frac{\sqrt{___}}{___}\right]$

Answer => $z=___+___\,i\sqrt{___}$

LIVEWORKSHEETS