Multiplying and Dividing Complex Numbers
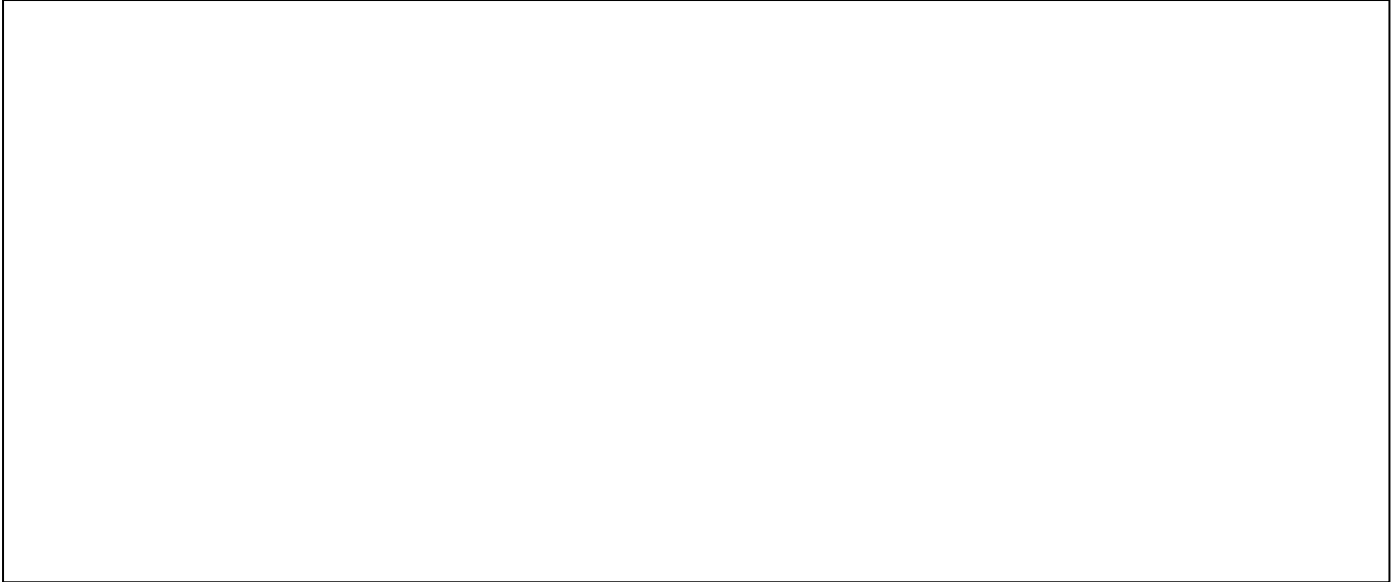
Examples

1. $3\left(\cos\frac{5\pi}{12} + i\sin\frac{5\pi}{12}\right) \times 4\left(\cos\frac{\pi}{12} + i\sin\frac{\pi}{12}\right)$

2. $2\left(\cos\frac{\pi}{15} + i\sin\frac{\pi}{15}\right) \times 3\left(\cos\frac{2\pi}{5} - i\sin\frac{2\pi}{5}\right)$

3. Write in the form $re^{i\theta}$:

$$\frac{2\left(\cos\frac{\pi}{12}+i\sin\frac{\pi}{12}\right)}{\sqrt{2}\left(\cos\frac{5\pi}{6}+i\sin\frac{5\pi}{6}\right)}$$

Test Your Understanding

If $z = 5\sqrt{3} - 5i$, find:

(a) $|z|$ (b) $\arg(z)$ in terms of π

If $w = 2\left(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}\right)$, find:

(c) $\left|\frac{w}{z}\right|$ (d) $\arg\left|\frac{w}{z}\right|$

Ex 1b pg 7