

**4.2**

$$\begin{aligned} 1) \quad z_1 z_2 &= (1 + 2i)(2 + i) \\ &= 2 + i + 4i + 2i^2 \\ &= 2 + i + 4i - 2 \\ &= 5i \end{aligned}$$

$$\begin{aligned} 2) \quad z_1 z_2 &= (1 + i)(2 - 5i) \\ &= 2 - 5i + 2i - 5i^2 \\ &= 2 - 5i + 2i + 5 \\ &= 7 - 3i \end{aligned}$$

$$\begin{aligned} 3) \quad z_1 z_2 &= (1 + i)(2 + 2i) \\ &= 2 + 2i + 2i + 2i^2 \\ &= 2 + 2i + 2i - 2 \\ &= 4i \end{aligned}$$

$$\begin{aligned} 4) \quad z_1 z_2 &= (-3 + i)(2 + 3i) \\ &= -6 - 9i + 2i + 3i^2 \\ &= -6 - 9i + 2i - 3 \\ &= -9 - 7i \end{aligned}$$

$$\begin{aligned} 5) \quad z_1 z_2 &= (-1 + 3i)(3 - 5i) \\ &= -3 + 5i + 9i - 15i^2 \\ &= -3 + 5i + 9i + 15 \\ &= 12 + 14i \end{aligned}$$

$$\begin{aligned} 6) \quad z_1 z_2 &= (-2 - 2i)(-1 + 3i) \\ &= 2 - 6i + 2i - 6i^2 \\ &= 2 - 6i + 2i + 6 \\ &= 8 - 4i \end{aligned}$$