$z = a + ib$

(a) $a = 5 \quad b = 2$

(b) $\dfrac{2\ (1+3i)}{(1-3i)(1+3i)} = \dfrac{2+6i}{1+9} = \dfrac{1}{5} + \dfrac{3}{5}i \qquad a = \dfrac{1}{5}, \quad b = \dfrac{3}{5}$

(c) $(\sqrt{2}+7i)(1+2i) = \sqrt{2} + 2\sqrt{2}i + 7i - 14 \qquad a = \sqrt{2} - 14, \quad b = 2\sqrt{2} + 7$

(d) $2^2 + 1^2 = 5 \qquad a = 5, \quad b = 0$

(e) $\dfrac{(-1+2i)(-1-i)}{(-1+i)(-1-i)} = \dfrac{1+i-2i+2}{1+1} = \dfrac{3-i}{2} \qquad a = \dfrac{3}{2} \quad b = -\dfrac{1}{2}$

(f) $e^{i\pi} = \cos\pi + i\sin\pi = -1 \qquad a = -1 \quad b = 0$

(g) $-i^2 = +1$