

VD unit 2 topic 4

Given two complex numbers  $z_1, z_2$ , (in the expression of a and b, a and b are real numbers) and an algebraic expression of the two given complex numbers,

Find  $z_1, z_2$

$z_1$	$z_2$	algebraic expression	$z_1, z_2$
$\sqrt{2} - ai$	$b + 2bi$	$z_1 + 2z_2 = 6i$	$z_1 = \sqrt{2} + (6 - 2\sqrt{2})i$ $z_2 = -\frac{\sqrt{2}}{2} - i\sqrt{2}$
$\frac{1}{2} - 2ai$	$(3 + a) + (2b - 3)i$	$2z_1 - z_2 = 2 - i\sqrt{3}$	$z_1 = \frac{1}{2} + 8i$ $z_2 = -1 + (16 + \sqrt{3})i$
$\frac{a + b}{2}$	$-(3a - b)i$	$z_1 + z_2 = \sqrt{5}(-1 + 2i)$	$z_1 = -\sqrt{5}$ $z_2 = i(2\sqrt{5})$
$(a - b) - 2ai$	$(a + 2b) - (3 + 5b)i$	$z_1 - z_2 = \sqrt{3} + i(3 + \sqrt{6})$	$z_1 = \left(-\frac{\sqrt{3}}{3} - \frac{\sqrt{6}}{2}\right) + \left(\frac{5}{3}\sqrt{3} + \sqrt{6}\right)i$ $z_2 = -\left(\frac{3\sqrt{3} + \sqrt{6}}{2}\right) + \left(-3 + \frac{5\sqrt{3}}{3}\right)i$
$a + bi$	$2a + 4bi$	$3z_1 - 4z_2 = \frac{1 + \sqrt{5}}{4} - \frac{1 - \sqrt{5}}{4}i$	$z_1 = \left(-\frac{1 + \sqrt{5}}{20}\right) + \left(\frac{1 - \sqrt{5}}{52}\right)i$ $z_2 = -\left(\frac{1 + \sqrt{5}}{10}\right) + \left(\frac{1 - \sqrt{5}}{13}\right)i$
$2a + bi$	$a\sqrt{2} + 2bi$	$z_1 + z_2 = (2 + \sqrt{2}) + i\sqrt{3}$	$z_1 = 2 + \frac{\sqrt{3}}{3}i$ $z_2 = \sqrt{2} + \left(\frac{2}{3}\sqrt{3}\right)i$
$\frac{a + b}{2}$	$b + 2bi$	$2z_1 - z_2 = 3 + i\sqrt{3}$	$z_1 = \frac{6 - \sqrt{3}}{4}$ $z_2 = -\frac{\sqrt{3}}{2} - i\sqrt{3}$
$-bi$	$a\sqrt{5} + 3i$	$z_1 + z_2 = -\sqrt{5} - 2i$	$z_1 = -5i$ $z_2 = -\sqrt{5} + 3i$