Complex Nos

ARGAND DIAGRAM

note:

$z = 1 + 3i$

$1 + i + z$

$= 1 + i + 1 + 3i$

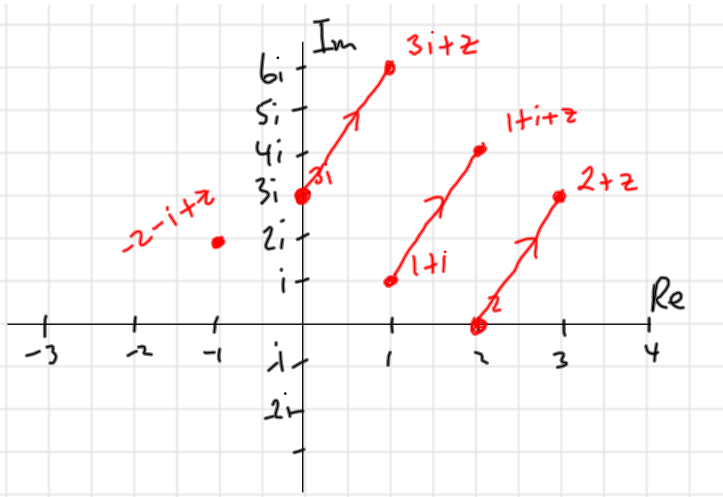
$= 2 + 4i$

↗ translation

5. If $z = 1 + 3i$, plot each of the following complex numbers on an Argand diagram.

(i) 2 (ii) $2 + z$ (iii) $3i$ (iv) $3i + z$
(v) $1 + i$ (vi) $1 + i + z$ (vii) $3i + z$ (viii) $-2 - i + z$

What geometrical observation can be made about adding the same complex number z to other complex numbers?



When you add the same complex no. it is like a translation

Complex Nos

3.4

modulus

Steps

① complex division

② get modulus

$|z| = \sqrt{a^2 + b^2}$

9. Evaluate each

(i) $\left|\dfrac{3 + i}{-2 - 3i}\right|$

$$= \frac{(3+i)(-2+3i)}{(-2-3i)(-2+3i)} = \frac{-6 - 2i + 9i \mp 3i^2}{4 \pm 9i^2}$$

$$= \frac{-9 + 7i}{13} = \frac{-9}{13} + \frac{7}{13}i$$

$$\text{Modulus} = \sqrt{\left(\frac{-9}{13}\right)^2 + \left(\frac{7}{13}\right)^2}$$

Use Calculator

$$= \frac{\sqrt{10}}{\sqrt{13}}$$