

4. Solve the following equations

i)  $5iz - 4 = 7i + 3z.$

ii)  $z^2 - 6z + 11 = 0.$

i)  $5iz - 4 = 7i + 3z$

$$5iz - 3z = 7i + 4$$

$$z(5i - 3) = 7i + 4$$

$$z = (7i + 4) / (5i - 3)$$

$$z = ((7i + 4)(-3 - 5i)) / ((5i - 3)(-5i - 3)) = ((7i + 4)(-3 - 5i)) / ((5i - 3)(-5i - 3)) =$$

$$= -(7i + 4)(3 + 5i) / (34) = -(21i + 35i^2 + 12 + 20i) / (34) =$$

$$= -(41i - 23) / (34) = (23 - 41i) / (34)$$

ii)  $z^2 - 6z + 11 = 0$

$$D = 36 - 44 = -8$$

$$z = (6 \pm i\sqrt{2}) / 2 = 3 \pm i\sqrt{2}$$