

Jahrgangsstufe 11 * Komplexe Zahlen

Quadratische Gleichungen in \mathbb{C}

Lösen Sie die Gleichungen in der Grundmenge \mathbb{C} .

1. $z^2 = 8 - 6i$
2. $z^2 = 3,75 - 2i$
3. $z^2 - 4z + 13 = 0$
4. $z^2 + 3z + 3,25 = 0$
5. $z^2 + (1+2i)z + 1+7i = 0$
6. $z^2 + (i-3)z + 4-3i = 0$
7. $iz^2 - (2+2i)z - 2+3i = 0$
8. $z^4 + (2+4i)z^2 = 3+4i$
9. $z^2 - \frac{4i}{z^2} = i - 4$



Lösungen:

1. $z_{1/2} = \pm (3 - i)$
2. $z_{1/2} = \pm (2 - 0,5i)$
3. $z_{1/2} = 2 \pm 3i$
4. $z_{1/2} = -1,5 \pm i$
5. $z_1 = 1 - 3i$; $z_2 = -2 + i$
6. $z_1 = 1 - 2i$; $z_2 = 2 + i$
7. $z_1 = 2 - 3i$; $z_2 = i$
8. $z_1 = 1$; $z_2 = -1$; $z_3 = 1 - 2i$; $z_4 = -1 + 2i$
9. $z_1 = 2i$; $z_2 = -2i$; $z_3 = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}i$; $z_4 = -\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}i$