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ACHA 4000 / ACMA 4006

iv)

$$z_1 - \bar{z}_2$$

$$3 + 7j - 2 - 10j$$

$$(3 + 7j) - (2 + 10j)$$

$$\boxed{1 + 3j}$$

v)  $(z_3)^3 - \bar{z}_1$

$$(-4 - j)^3 - (3 + 7j)$$

$$-64 + 4j + 4j + 4j - 3 - 7j$$

$$\boxed{-67 + 5j}$$

b)  $8x^2 = -3x - 18$

$$-8x^2 - 3x - 18 = 0$$

$$x = \frac{3 \pm \sqrt{(3)^2 - 4(-8)(-18)}}{2(-8)}$$

$$x = \frac{3 \pm \sqrt{-567}}{-16}$$

$$x = \frac{3 \pm 23.81j}{-16}$$

$$x = \frac{3}{-16} + \frac{23.81j}{-16}$$

$$x = \frac{3}{-16} - \frac{23.81j}{-16}$$

$$\boxed{x = -0.19 - 1.49j}$$

$$\boxed{x = -0.19 + 1.49j}$$