

Worksheet #16

Answers

$$1) 2 - 3i\sqrt{3} \quad 2) 1 + 2i\sqrt{2} \quad 3) 0 + 5i\sqrt{3} \quad 4) -1 - 6i$$

$$5) 8 + 4i \quad 6) -3 - 11i \quad 7) 16 + 40i + 25i^2 = -9 + 40i$$

$$8) \frac{4}{4 - 5i} \cdot \frac{(4 + 5i)}{(4 + 5i)} = \frac{16 + 20i}{16 - 25i^2} = \frac{16 + 20i}{41}$$

$$9) x = \frac{-8 \pm \sqrt{64 - 4(16)(-3)}}{32} = \frac{-8 \pm \sqrt{64 + 192}}{32} = \frac{-8 \pm \sqrt{256}}{32} = \frac{-8 \pm 16}{32} = \frac{-24}{32}, \frac{8}{32} = -\frac{3}{4}, \frac{1}{4}$$

$$10) x = \frac{10 \pm \sqrt{100 - 4(1)(22)}}{2} = \frac{10 \pm \sqrt{100 - 88}}{2} = \frac{10 \pm \sqrt{12}}{2} = \frac{10 \pm 2\sqrt{3}}{2} = 5 \pm \sqrt{3}$$

$$11) x = \frac{-14 \pm \sqrt{196 - 4(1)(44)}}{2} = \frac{-14 \pm \sqrt{196 - 176}}{2} = \frac{-14 \pm \sqrt{20}}{2} = \frac{-14 \pm 2\sqrt{5}}{2} = -7 \pm \sqrt{5}$$

$$12) -9x^2 + 12x + 3 = 0$$

$$x = \frac{-12 \pm \sqrt{144 - 4(-9)(3)}}{-18} = \frac{-12 \pm \sqrt{144 + 108}}{-18} = \frac{-12 \pm \sqrt{252}}{-18}$$

$$x = \frac{-12 \pm 6\sqrt{7}}{-18} = \frac{2 \pm \sqrt{7}}{3}$$

$$13) \text{sum} = -16 \quad \text{product} = 64 + 9 = 73 \quad f(x) = x^2 + 16x + 73$$

$$14) \text{sum} = 0 \quad \text{product} = 49 \quad f(x) = x^2 + 49$$

$$15) \text{sum} = 12 \quad \text{product} = 36 - 5 = 31 \quad f(x) = x^2 - 12x + 31$$