

Perform the indicated operation and write the result in standard form.

1. $(-1 + 8i) + (8 - 5i)$

$7 + 3i$

2. $(7 + 6i) + (3 + 12i)$

$10 + 18i$

3. $(11 - 2i) - (-3 + 6i)$

$14 - 8i$

4. $(4 + i) - (7 - 2i)$

$-3 + 3i$

5. $22 + (-5 + 8i) - 9i$

$17 - i$

6. $(1.6 + 3.2i) + (-5.8 + 4.3i)$

$-4.2 + 7.5i$

7. $(6 - 2i)(2 - 3i)$

$12 - 18i - 4i + 6i^2$

$6 - 22i$

8. $(\sqrt{14} + \sqrt{10}i)(\sqrt{14} - \sqrt{10}i)$

$14 - i\sqrt{140} + i\sqrt{140} - 10i^2$

24

9. $(4 + 5i)^2 - (4 - 5i)^2$

$16 + 40i + 25i^2 - 16 + 40i - 25i^2$

$80i$

10. $\frac{2+i}{2-i} \times \frac{2+i}{2+i}$

$\frac{4 + 2i + 2i + i^2}{4 - i^2}$

$\frac{3 + 4i}{5}$

Solve the quadratic equation.

$$11. x^2 + 25 = 0$$

$$x^2 = -25$$

$$\boxed{x = \pm 5i}$$

$$12. x^2 + 6x + 10 = 0$$

$$x = \frac{-6 \pm \sqrt{36 - 40}}{2}$$

$$= \frac{-6 \pm 2i}{2}$$

$$\boxed{= -3 \pm i}$$

$$13. 9x^2 - 6x + 37 = 0$$

$$x = \frac{6 \pm \sqrt{36 - 1332}}{18}$$

$$= \frac{6 \pm 36i}{18}$$

$$\boxed{= \frac{1 \pm 6i}{3}}$$

$$14. \frac{3}{2}x^2 - 6x + 9 = 0$$

$$3x^2 - 12x + 18 = 0$$

$$x^2 - 4x + 6 = 0$$

$$x = \frac{4 \pm \sqrt{16 - 24}}{2}$$

$$= \frac{4 \pm 2i\sqrt{2}}{2}$$

$$\boxed{= 2 \pm i\sqrt{2}}$$