

Pre-Calculus
Complex Numbers Practice

Name:

Simplify.

1. $-\frac{3}{2} + \sqrt{-81}$

5. $\frac{2+i}{3-2i} - \frac{1+i}{3+8i}$

9. $25 + (-10 + 11i) + 15i$

13. $\left(\frac{1}{2} + i\right)^2$

2. $(\sqrt{-25})(\sqrt{-9})$

6. $(8 + 3\sqrt{2}i)(4 + 3\sqrt{2}i)$

10. $(13 - 2i)(-5 + 6i)$

14. $\frac{-3 + 7i}{-5i}$

3. $\left(\frac{3}{4} - \frac{3}{4}i\right) + \left(\frac{9}{4} + \frac{5}{4}i\right)$

7. $\frac{4 + 2i}{2 - i}$

11. $\frac{2 + i}{3 - i}$

15. $\frac{9 - 7i}{-2 + 2i}$

4. $(i\sqrt{2})(i\sqrt{6})$

8. $8(8 + \sqrt{-18}) - (4 + 3\sqrt{2}i)$

12. $(-10 + 11i)(15i)$

Solve for x.

16. $2x^2 - 5x + 7 = 0$

17. $10x^2 - 6x + 9 = 0$

18. $8x^2 + 9x + 9 = 0$

Answers:

1. $-\frac{3}{2} + 9i$

2. -15

3. $3 + \frac{1}{2}i$

4. $-2\sqrt{3}$

5. $\frac{227}{949} + \frac{368}{949}i$

6. $14 + 36\sqrt{2}i$

7. $\frac{6}{5} + \frac{8}{5}i$

8. 4

9. $15 + 26i$

10. $-53 + 88i$

11. $\frac{1}{2} + \frac{1}{2}i$

12. $-165 + 150i$

13. $\frac{3}{4} + i$

14. $-\frac{7}{5} - \frac{3}{5}i$

15. $-4 - \frac{1}{2}i$

16. $\frac{5}{4} \pm \frac{\sqrt{31}}{4}i$

17. $\frac{3}{10} \pm \frac{9}{10}i$

18. $-\frac{9}{16} \pm \frac{3\sqrt{23}}{16}i$