NAME _____ DATE _____

Practice

Student Edition
Pages 310–316

Complex Numbers

Simplify.

1. $\sqrt{-49}$

2. $\sqrt{-48}$

3. $6\sqrt{-12}$

4. $\sqrt{\frac{-16}{25}}$

5. $\sqrt{\frac{-2}{7}}$

6. $\sqrt{\frac{-8}{3}}$

7. i^{42}

8. i^{91}

9. $(7 - 6i) + (9 + 11i)$

10. $(5 + \sqrt{-8}) + (-13 + 4\sqrt{-2})$

11. $-6(2 - 8i) + 3(5 + 7i)$

12. $4(7 - i) - 5(2 - 6i)$

13. $(3 - 4i)^2$

14. $(\sqrt{5} + 2i)^2$

15. $(6 - 4i)(6 + 4i)$

16. $(8 - \sqrt{-11})(8 + \sqrt{-11})$

17. $5(2 + 3i) + 6(8 - 5i)$

18. $(4 + 3i)(2 - 5i)(4 - 3i)$

Solve each equation.

19. $n^2 + 25 = 0$

20. $m^2 + 10 = 0$

21. $6y^2 + 42 = 0$

22. $4r^2 + 64 = 0$

Find the values of x and y for which each equation is true.

23. $3x - 5yi = 15 - 20i$

24. $\sqrt{3}x + 7yi = 6 - 2i$

5-9

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Practice

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Complex Numbers

Simplify.

1. $\sqrt{-49}$ $7i$

2. $\sqrt{-48}$ $4i\sqrt{3}$

3. $6\sqrt{-12}$ $12i\sqrt{3}$

4. $\sqrt{\frac{-16}{25}}$ $\frac{4}{5}i$

5. $\sqrt{\frac{-2}{7}}$ $\frac{i\sqrt{14}}{7}$

6. $\sqrt{\frac{-8}{3}}$ $\frac{2i\sqrt{6}}{3}$

7. i^{42} -1

8. i^{91} $-i$

9. $(7 - 6i) + (9 + 11i)$
$16 + 5i$

10. $(5 + \sqrt{-8}) + (-13 + 4\sqrt{-2})$
$-8 + 6i\sqrt{2}$

11. $-6(2 - 8i) + 3(5 + 7i)$
$3 + 69i$

12. $4(7 - i) - 5(2 - 6i)$
$18 + 26i$

13. $(3 - 4i)^2$
$-7 - 24i$

14. $(\sqrt{5} + 2i)^2$
$1 + 4i\sqrt{5}$

15. $(6 - 4i)(6 + 4i)$
52

16. $(8 - \sqrt{-11})(8 + \sqrt{-11})$
75

17. $5(2 + 3i) + 6(8 - 5i)$
$58 - 15i$

18. $(4 + 3i)(2 - 5i)(4 - 3i)$
$50 - 125i$

Solve each equation.

19. $n^2 + 25 = 0$ $\pm 5i$

20. $m^2 + 10 = 0$ $\pm i\sqrt{10}$

21. $6y^2 + 42 = 0$ $\pm i\sqrt{7}$

22. $4r^2 + 64 = 0$ $\pm 4i$

Find the values of x and y for which each equation is true.

23. $3x - 5yi = 15 - 20i$
$x = 5$
$y = 4$

24. $\sqrt{3}x + 7yi = 6 - 2i$
$x = 2\sqrt{3}$
$y = -\frac{2}{7}$