NAME

Solving Quadratic and Other Equations

3.9

Ready, Set, Go!

Ready

Topic: Classifying numbers according to set.

Classify each of the numbers represented below according to the sets to which they belong. If a number fits in more than one set then list all that apply.
(Whole numbers "$\mathbb{W}$", Integers "$\mathbb{Z}$", Rational "$\mathbb{Q}$", Irrational "$\overline{\mathbb{Q}}$", Real "$\mathbb{R}$", Complex "$\mathbb{C}$")

1. π
2. -13
3. $\sqrt{-16}$
4. 0
5. $\sqrt{75}$
6. $\frac{9}{3}$
7. $\sqrt{\frac{4}{9}}$
8. $5 + \sqrt{2}$
9. $\sqrt{-40}$

Set

Topic: Simplifying radicals, imaginary numbers

Simplify each radical expression below.

10. $3 + \sqrt{2} - 7 + 3\sqrt{2}$
11. $\sqrt{5} - 9 + 8\sqrt{5} + 11 - \sqrt{5}$
12. $\sqrt{12} + \sqrt{48}$
13. $\sqrt{8} - \sqrt{18} + \sqrt{32}$
14. $11\sqrt{7} - 5\sqrt{7}$
15. $7\sqrt{7} + 5\sqrt{3} - 3\sqrt{7} + \sqrt{3}$

Simplify. Express as a complex number using " i " if necessary.

16. $\sqrt{-2} \cdot \sqrt{-2}$

17. $7 + \sqrt{-25}$

18. $(4i)^2$

19. $i^2 \cdot i^3 \cdot i^4$

20. $\left(\sqrt{-4}\right)^3$

21. $(2i)(5i)^2$

Solve each quadratic equation over the set of complex numbers.

22. $x^2 + 100 = 0$

23. $t^2 + 24 = 0$

24. $x^2 - 6x + 13 = 0$

25. $r^2 - 2r + 5 = 0$

Go

Topic: Solve quadratic equations.

Use the discriminate to determine the nature of the roots to the quadratic equation.

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

27. $x^2 - 5x + 6 = 0$

28. $2x^2 - 5x + 5 = 0$

Use the discriminate to determine the nature of the roots to the quadratic equation.

29. $x^2 + 7x + 2 = 0$

30. $2x^2 + 7x + 6 = 0$

31. $2x^2 + 7x + 7 = 0$

32. $2x^2 - 7x + 6 = 0$

33. $2x^2 + 7x - 6 = 0$

34. $x^2 + 6x + 9 = 0$

Solve the quadratic equations below using an appropriate method.

35. $m^2 + 15m + 56 = 0$

36. $5x^2 - 3x + 7 = 0$

37. $x^2 - 10x + 21 = 0$

38. $6x^2 + 7x - 5 = 0$