

- 201c p.184 #35, 37, 39, 40, 43 (Solve by perfect square or factoring); p.195 #27, 29, 33

Thursday, February 6, 2025 5:06 PM



Fact_Comp
Sq_HW1

$$\begin{array}{l}
 (35) \ 15x^2 - 84x - 36 = 0 \\
 3(5x^2 - 28x - 12) = 0 \\
 3(5x + 2)(x - 6) = 0 \\
 5x + 2 = 0 \quad x - 6 = 0 \\
 \frac{5x}{5} = \frac{-2}{5} \\
 \boxed{x = -\frac{2}{5} \quad x = 6}
 \end{array}
 \quad
 \begin{array}{l}
 (39) \ x^2 - 5x - 24 = 0 \\
 (x - 8)(x + 3) = 0 \\
 x - 8 = 0 \quad x + 3 = 0 \\
 \boxed{x = 8 \quad x = -3}
 \end{array}$$

$$\begin{array}{l}
 (37) \ 12x^2 - 108x = 0 \\
 12x(x - 9) = 0 \\
 12x = 0 \quad x - 9 = 0 \\
 \boxed{x = 0 \quad x = 9}
 \end{array}
 \quad
 \begin{array}{l}
 (40) \ x^2 = 121 \\
 x = \pm \sqrt{121} \\
 \boxed{x = \pm 11}
 \end{array}$$

$$\begin{array}{l}
 (43) \ -8x^2 + 46x - 30 = 0 \\
 -2(4x^2 - 23x + 15) = 0 \\
 -2(4x - 3)(x - 5) = 0 \\
 4x - 3 = 0 \quad x - 5 = 0 \\
 4x = 3 \quad x = 5 \\
 \boxed{x = \frac{3}{4} \quad x = 5}
 \end{array}$$

Solve each equation.

35. $15x^2 - 84x - 36 = 0$

36. $12x^2 + 13x - 14 = 0$

37. $12x^2 - 108x = 0$

38. $x^2 + 4x - 45 = 0$

39. $x^2 - 5x - 24 = 0$

40. $x^2 = 121$

41. $x^2 + 17 = 13$

42. $-3x^2 - 10x + 8 = 0$

43. $-8x^2 + 46x - 30 = 0$

44. **GEOMETRY** The hypotenuse of a right triangle is 1 centimeter longer than one side and 4 centimeters longer than three times the other side. Find the dimensions of the triangle.

$$(29) \quad x^2 - 4x + 2^2 - 2^2 + 3 = 0$$

$$(x-2)^2 - 1 = 0$$

$$\sqrt{(x-2)^2} = \pm \sqrt{1}$$

$$x-2 = \pm 1$$

$$x = 2 \pm 1$$

$$x = 2+1, x = 2-1$$

$$\boxed{x = 3, 1}$$

$$(27) \quad x^2 + 2x + 1^2 - 1^2 - 12 = 0$$

$$(x+1)^2 - 13 = 0$$

$$\sqrt{(x+1)^2} = \pm \sqrt{13}$$

$$x+1 = \pm \sqrt{13}$$

$$\boxed{x = -1 \pm \sqrt{13}}$$

$$(33) \quad 3(x^2 - 2x + 1^2 - 1^2) - 9 = 0$$

$$3(x-1)^2 - 3 - 9 = 0$$

$$\frac{3(x-1)^2}{3} = \frac{12}{3}$$

$$\sqrt{(x-1)^2} = \pm \sqrt{4}$$

$$x-1 = \pm 2$$

$$x = 1 \pm 2$$

$$x = 1+2, x = 1-2$$

$$\boxed{x = 3, -1}$$

4 Solve each equation by completing the square.

26. $x^2 - 4x + 12 = 0$

29. $x^2 - 4x + 3 = 0$

32. $2x^2 + 5x + 7 = 0$

35. $x^2 + 4x + 11 = 0$

38. $3x^2 - 4x = 2$

41. $x^2 - 5.3x = -8.6$

27. $x^2 + 2x - 12 = 0$

30. $2x^2 + x - 3 = 0$

33. $3x^2 - 6x - 9 = 0$

36. $x^2 - 6x + 18 = 0$

39. $2x^2 - 7x = -12$

42. $x^2 - \frac{1}{5}x - \frac{11}{5} = 0$

28. $x^2 + 6x + 8 = 0$

31. $2x^2 - 3x + 5 = 0$

34. $x^2 - 2x + 3 = 0$

37. $x^2 - 10x + 29 = 0$

40. $x^2 - 2.4x = 2.2$

43. $x^2 - \frac{9}{2}x - \frac{24}{5} = 0$