

1. $x^2 - 9x + 18$

$$\begin{array}{c} 18 \\ \diagdown \quad \diagup \\ \underline{-6} + \underline{-3} = \underline{-9} \end{array}$$

Factored Form: $(x - 6)(x - 3)$

Solutions/Zeros: $x = 6$ $x = 3$

2. $x^2 - 7x + 10$

$$\begin{array}{c} 10 \\ \diagdown \quad \diagup \\ \underline{-5} + \underline{-2} = \underline{-7} \end{array}$$

Factored Form: $(x - 5)(x - 2)$

Solutions/Zeros: $x = 5$ $x = 2$

3. $-3x^2 + 9x + 12$

$$-3(x^2 - 3x - 4) \begin{array}{c} -4 \\ \diagdown \quad \diagup \\ \underline{-4} + \underline{1} = \underline{-3} \end{array}$$

Factored Form: $-3(x - 4)(x + 1)$

Solutions/Zeros: $x = 4$ $x = -1$

4. $5x^2 + 28x + 32$

$$x^2 + 28x + 160 \begin{array}{c} 160 \\ \diagdown \quad \diagup \\ \underline{\frac{8}{5}} + \underline{\frac{20}{5}} = \underline{28} \end{array}$$

Factored Form: $(5x + 8)(x + 4)$

Solutions/Zeros: $x = -8/5$ $x = -4$

5. $2x^2 - 27x + 36$

$$x^2 - 27x + 72 \begin{array}{c} 72 \\ \diagdown \quad \diagup \\ \underline{\frac{-3}{2}} + \underline{\frac{-24}{2}} = \underline{-27} \end{array}$$

Factored Form: $(2x - 3)(x - 12)$

Solutions/Zeros: $x = 3/2$ $x = 12$

6. $2x^2 - 16x + 12$

$$2x^2 - 16x - 12 \begin{array}{c} -6 \\ \diagdown \quad \diagup \\ \underline{\quad} + \underline{\quad} = \underline{-8} \end{array}$$

Factored Form: *Not factorable*

Solutions: $x = \quad$ $x = \quad$

7. $x^2 - 21 = 4x$

$$x^2 - 4x - 21 \begin{array}{c} -21 \\ \diagdown \quad \diagup \\ \underline{-7} + \underline{3} = \underline{-4} \end{array}$$

Factored Form: $(x - 7)(x + 3)$

Solutions/Zeros: $x = 7$ $x = -3$

8. $x^2 - 6x = -5$

$$x^2 - 6x + 5 \begin{array}{c} 5 \\ \diagdown \quad \diagup \\ \underline{-5} + \underline{-1} = \underline{-6} \end{array}$$

Factored Form: $(x - 5)(x - 1)$

Solutions/Zeros: $x = 5$ $x = 1$

<p>9. $-7x^2 = 35x$</p> $-7x^2 - 35x$ <p>Factored Form: $-7x(x - 5)$</p> <p>Solutions/Zeros: $x = 0$ $x = 5$</p>	<p>10. $8x^2 + 16x - 280$</p> $8(x^2 + 2x - 35)$ $\begin{array}{c} -35 \\ \diagup \quad \diagdown \\ \underline{7} + \underline{-5} = \underline{2} \end{array}$ <p>Factored Form: $8(x + 7)(x - 5)$</p> <p>Solutions/Zeros: $x = -7$ $x = 5$</p>
<p>11. $7x^2 = 17x - 6$</p> $7x^2 - 17x + 6$ $x^2 - 17x + 42$ $\begin{array}{c} 42 \\ \diagup \quad \diagdown \\ \underline{-3} + \underline{-14} = \underline{-17} \end{array}$ <p>Factored Form: $(7x - 3)(x - 2)$</p> <p>Solutions/Zeros: $x = 3/7$ $x = 2$</p>	<p>12. $3x^2 + 4x - 7 = 0$</p> $x^2 + 4x - 21$ $\begin{array}{c} -35 \\ \diagup \quad \diagdown \\ \underline{-3} + \underline{7} = \underline{4} \end{array}$ <p>Factored Form: $(x - 1)(3x + 7)$</p> <p>Solutions: $x = 1$ $x = -7/3$</p>
<p>13. $64x^2 - 344x + 120 = 0$</p> $8(8x^2 - 43x + 15)$ $8(x^2 - 43x + 120)$ $\begin{array}{c} 120 \\ \diagup \quad \diagdown \\ \underline{-3} + \underline{-40} = \underline{-34} \end{array}$ <p>Factored Form: $8(8x - 3)(x - 5)$</p> <p>Solutions/Zeros: $x = 3/8$ $x = 5$</p>	<p>14. $30x^2 + 90 = 168x$</p> $30x^2 - 168x + 90$ $6(5x^2 - 28x + 15)$ $6(x^2 - 28x + 75)$ $\begin{array}{c} 75 \\ \diagup \quad \diagdown \\ \underline{-3} + \underline{-25} = \underline{-28} \end{array}$ <p>Factored Form: $6(5x - 3)(x - 5)$</p> <p>Solutions: $x = 3/5$ $x = 5$</p>

Simplifying the following square root expressions:

7. $\sqrt{98}$ $7\sqrt{2}$

10. $\sqrt{175}$ $5\sqrt{7}$

13. $\sqrt{112}$ $4\sqrt{7}$

8. $\sqrt{216}$ $6\sqrt{6}$

11. $\sqrt{45}$ $3\sqrt{5}$

14. $\sqrt{200}$ $10\sqrt{2}$

9. $\sqrt{18}$ $3\sqrt{2}$

12. $\sqrt{150}$ $5\sqrt{6}$

15. $\sqrt{96}$ $4\sqrt{6}$