

$$6. (3x^2 - 12 = 0) \div 3$$

$$\begin{array}{r} x^2 - 4 = 0 \\ +4 \quad +4 \\ \hline \sqrt{x^2} = \sqrt{4} \\ x = \pm 2 \end{array}$$

$$7. (x+1)^2 + 3 = 0$$

$$\begin{array}{r} (x+1)^2 + 3 = 0 \\ -3 \quad -3 \\ \hline \sqrt{(x+1)^2} = \sqrt{-3} \end{array}$$

⇒ **no solution!**

cannot square root a negative.

$$8. \frac{2(x - \frac{1}{2})^2}{2} = \frac{4}{2}$$

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

$$\begin{array}{r} x - \frac{1}{2} = \pm \sqrt{2} \\ +\frac{1}{2} \quad +\frac{1}{2} \\ \hline \end{array}$$

$$x = \frac{1}{2} \pm \sqrt{2}$$

$$9. (2x^2 - 4 = 0) \div 2$$

$$\begin{array}{r} x^2 - 2 = 0 \\ +2 \quad +2 \\ \hline \sqrt{x^2} = \sqrt{2} \end{array}$$

$$x = \pm \sqrt{2}$$

$$10. \frac{1}{2}(x-1)^2 - 3 = 0$$

$$\begin{array}{r} \frac{1}{2}(x-1)^2 - 3 = 0 \\ +3 \quad +3 \\ \hline \frac{1}{2}(x-1)^2 = 3 \quad +12 \\ \times \frac{1}{2} \quad \times \frac{1}{2} \\ \hline \end{array}$$

$$\sqrt{(x-1)^2} = \sqrt{6}$$

$$\begin{array}{r} x - 1 = \pm \sqrt{6} \\ +1 \quad +1 \\ \hline \end{array}$$

$$x = 1 \pm \sqrt{6}$$

$$6. (x^2 - 8x) - 11 = 0$$

$$(x^2 - 8x + 16 - 16) - 11 = 0$$

$$(x - 4)^2 - 27 = 0$$

$$\sqrt{(x - 4)^2} = \sqrt{27}$$

$$x - 4 = \pm \sqrt{27}$$

$$+4 \quad +4$$

$$x = 4 \pm \sqrt{27}$$

$$7. (2x^2 + 8x) = -4$$

$$2(x^2 + 4x + 4 - 4) + 4 = 0$$

$$2(x + 2)^2 - 4 = 0$$

$$\frac{2(x + 2)^2}{2} = \frac{4}{2}$$

$$8. (-x^2 + 6x) - 3 = 0$$

$$-(x^2 - 6x) - 3 = 0$$

$$-(x^2 - 6x + 9 - 9) - 3 = 0$$

$$-1(x - 3)^2 + 6 = 0$$

$$9. (-x^2 + 8x) - 20 = 0$$

$$-(x^2 - 8x + 16 - 16) - 20 = 0$$

$$-1(x - 4)^2 - 4 = 0$$

$$-1(x - 4)^2 = 4$$

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

$$x + 2 = \pm \sqrt{2}$$

$$-2 \quad -2$$

$$x = -2 \pm \sqrt{2}$$

$$\sqrt{(x - 3)^2} = \sqrt{6}$$

$$x - 3 = \pm \sqrt{6}$$

$$+3 \quad +3$$

$$x = 3 \pm \sqrt{6}$$

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

no solution

$$10. (-x^2 + 8x) + 20 = 0$$

$$-(x^2 - 8x + 16 - 16) + 20 = 0$$

$$-(x - 4)^2 + 36 = 0$$

$$-1(x - 4)^2 = -36$$

$$\sqrt{(x - 4)^2} = \sqrt{36}$$

$$x - 4 = \pm 6$$

$$+4 \quad +4$$

$$x = 10 \text{ \& } -2$$