

① $3x^2 + 8x - 35$

$$\frac{-8 \pm \sqrt{8^2 - 4(3)(-35)}}{2(3)}$$

$$\frac{-8 \pm \sqrt{64 + 420}}{6} = \frac{-8 \pm \sqrt{484}}{6}$$

$$\frac{-8 + 22}{6}$$

$$\frac{-8 - 22}{6}$$

$$\frac{14}{6} = \left(\frac{7}{3}\right)$$

$$\frac{-30}{6} = (-5)$$

⑤ $x^2 + 64 = 16x$

$$x^2 - 16x + 64 = 0$$

$$\frac{-16 \pm \sqrt{(16)^2 - 4(1)(64)}}{2(1)}$$

$$\frac{16 \pm \sqrt{256 - 256}}{2} = \frac{16 \pm 0}{2} = 8$$

$$x = 8$$

⑦ $3x^2 = -81$

$$x^2 = -27$$

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

\emptyset

⑦ $5x^2 + 18 = 3$

$$\frac{5x^2}{5} = \frac{-15}{5}$$

$$x^2 = -3$$

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

\emptyset

② $12x - 5 = 2x^2 + 13$

$$2x^2 - 12x + 18 = 0$$

$$\frac{-12 \pm \sqrt{(-12)^2 - 4(2)(18)}}{2(2)} = \frac{-12 \pm \sqrt{144 - 144}}{4} = \frac{-12 \pm 0}{4} = \frac{-12}{4} = -3$$

$$x = -3$$

③ $x^2 = 2x - 5$

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

$$\frac{-2 \pm \sqrt{(-2)^2 - 4(1)(5)}}{2(1)}$$

$$\frac{2 \pm \sqrt{4 - 20}}{2} = \frac{2 \pm \sqrt{-16}}{2}$$

$$\emptyset \quad \frac{2 \pm 4i}{2} = \boxed{1 \pm 2i}$$

⑥ $-2x^2 = -2x + 3$

$$2x^2 + 2x + 3 = 0$$

$$\frac{-2 \pm \sqrt{(2)^2 - 4(2)(3)}}{2(2)} = \frac{2 \pm \sqrt{4 - 24}}{4}$$

$$\frac{2 \pm \sqrt{-20}}{4} \quad \emptyset = \frac{2 \pm 2i\sqrt{5}}{4} = \boxed{\frac{1 \pm i\sqrt{5}}{2}}$$

⑧ $(m-2)^2 = -16$

$$m-2 = \sqrt{-16}$$

$$m = 2 + \sqrt{-16}$$

\emptyset

⑩ $-\frac{1}{8}(x+3)^2 = 7$

$$(x+3)^2 = -56$$

$$x+3 = \pm \sqrt{-56}$$

$$x = -3 \pm \sqrt{-56}$$

\emptyset

④ $2x^2 + x = x^2 - 2x + 4$

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

$$\frac{-3 \pm \sqrt{3^2 - 4(1)(-4)}}{2(1)}$$

$$\frac{-3 \pm \sqrt{9 + 16}}{2} = \frac{-3 \pm \sqrt{25}}{2}$$

$$\frac{-3 + 5}{2} = \frac{2}{2} = 1 \quad \frac{-3 - 5}{2} = \frac{-8}{2} = -4$$

$$x = 1 \quad x = -4$$