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次の 2 次方程式を解の公式を使って解きなさい。

① $3x^2 + 5x + 2 = 0$

② $4x^2 + x - 3 = 0$

③ $2x^2 - 5x + 3 = 0$

④ $6x^2 - 5x - 2 = 0$

1 次の2次方程式を解の公式を使って解きなさい。

① $3x^2 + 5x + 2 = 0$

$$x = -\frac{3}{2}, x = -1$$

$$\begin{aligned} x &= \frac{-5 \pm \sqrt{5^2 - 4 \times 3 \times 2}}{2 \times 3} \\ &= \frac{-5 \pm \sqrt{25 - 24}}{6} \\ &= \frac{-5 \pm \sqrt{1}}{6} \\ &= \frac{-5 \pm 1}{6} \\ x &= -1, x = -\frac{2}{3} \end{aligned}$$

② $4x^2 + x - 3 = 0$

$$x = -1, x = \frac{3}{4}$$

$$\begin{aligned} x &= \frac{-1 \pm \sqrt{1^2 - 4 \times 4 \times (-3)}}{2 \times 4} \\ &= \frac{-1 \pm \sqrt{1 + 48}}{8} \\ &= \frac{-1 \pm \sqrt{49}}{8} \\ &= \frac{-1 \pm 7}{8} \\ x &= -1, x = \frac{3}{4} \end{aligned}$$

③ $2x^2 - 5x + 3 = 0$

$$x = 1, x = 2$$

$$\begin{aligned} x &= \frac{5 \pm \sqrt{(-5)^2 - 4 \times 2 \times 3}}{2 \times 2} \\ &= \frac{5 \pm \sqrt{25 - 24}}{4} \\ &= \frac{5 \pm \sqrt{1}}{4} \\ &= \frac{5 \pm 1}{4} \\ x &= 1, x = \frac{3}{2} \end{aligned}$$

④ $6x^2 - 5x - 2 = 0$

$$x = \frac{5 \pm \sqrt{73}}{12}$$

$$\begin{aligned} x &= \frac{5 \pm \sqrt{(-5)^2 - 4 \times 6 \times (-2)}}{2 \times 6} \\ &= \frac{5 \pm \sqrt{25 + 48}}{12} \\ x &= \frac{5 \pm \sqrt{73}}{12} \end{aligned}$$