

1

次の式を因数分解しましょう。

$$\begin{aligned} (1) \quad & 3x^2 + 9x - 54 \\ & = 3(x^2 + 3x - 18) \\ & = 3(x + 6)(x - 3) \end{aligned}$$

$$3(x + 6)(x - 3)$$

$$\begin{aligned} (2) \quad & 4ab^2 - 36a \\ & = 4a(b^2 - 9) \\ & = 4a(b + 3)(b - 3) \end{aligned}$$

$$4a(b + 3)(b - 3)$$

2

次の計算をしましょう。

$$\begin{aligned} (1) \quad & \sqrt{14} \times \sqrt{7} \\ & = \sqrt{2 \times 7} \times \sqrt{7} \\ & = 7\sqrt{2} \end{aligned}$$

$$7\sqrt{2}$$

$$\begin{aligned} (2) \quad & 4 \div \sqrt{6} \\ & = \frac{4 \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}} \\ & = \frac{2\sqrt{6}}{3} \end{aligned}$$

$$\frac{2\sqrt{6}}{3}$$

$$\begin{aligned} (3) \quad & \sqrt{50} + \sqrt{32} \\ & = 5\sqrt{2} + 4\sqrt{2} \\ & = 9\sqrt{2} \end{aligned}$$

根号の中の数は、できるだけ小さい自然数にします。

$$9\sqrt{2}$$

$$\begin{aligned} (4) \quad & \sqrt{3}(\sqrt{6} - \sqrt{2}) \\ & = \sqrt{3} \times \sqrt{6} - \sqrt{3} \times \sqrt{2} \\ & = 3\sqrt{2} - \sqrt{6} \end{aligned}$$

$$3\sqrt{2} - \sqrt{6}$$

$$\begin{aligned} (5) \quad & \sqrt{\frac{3}{2}} + \frac{9}{\sqrt{6}} \\ & = \frac{\sqrt{3} \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} + \frac{9 \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}} \\ & = \frac{\sqrt{6}}{2} + \frac{3\sqrt{6}}{2} \\ & = 2\sqrt{6} \end{aligned}$$

$$2\sqrt{6}$$

同じ数の平方根を含んだ式は、同類項をまとめるのと同じようにして簡単にします。

$$\begin{aligned} (6) \quad & 3\sqrt{5} - \frac{20}{\sqrt{5}} \\ & = 3\sqrt{5} - \frac{20 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ & = 3\sqrt{5} - 4\sqrt{5} \\ & = -\sqrt{5} \end{aligned}$$

$$-\sqrt{5}$$