

# $\sqrt{\quad}$ の計算

$$\sqrt{12}$$

# √の計算

$$\sqrt{12} = \sqrt{2 \times 2 \times 3}$$

# √の計算

$$\begin{aligned}\sqrt{12} &= \sqrt{2 \times 2 \times 3} \\ &= \sqrt{2 \times 2 \times 3}\end{aligned}$$

# √の計算

$$\begin{aligned}\sqrt{12} &= \sqrt{2 \times 2 \times 3} \\ &= \sqrt{2 \times 2 \times 3} \\ &= 2\sqrt{3}\end{aligned}$$

ペアになると√の外に出すことができる

# $\sqrt{\quad}$ の計算

$$\sqrt{54}$$

# √の計算

$$\sqrt{54} = \sqrt{2 \times 3 \times 3 \times 3}$$

# √の計算

$$\begin{aligned}\sqrt{54} &= \sqrt{2 \times 3 \times 3 \times 3} \\ &= \sqrt{2 \times 3 \times 3 \times 3}\end{aligned}$$

# √の計算

$$\begin{aligned}\sqrt{54} &= \sqrt{2 \times 3 \times 3 \times 3} \\ &= \sqrt{2 \times \mathbf{3} \times \mathbf{3} \times 3} \\ &= \mathbf{3}\sqrt{2 \times 3} \\ &= 3\sqrt{6}\end{aligned}$$

ペアになると√の外に出すことができる



# √の計算

$$\sqrt{72}$$

# √の計算

$$\sqrt{72} = \sqrt{2 \times 2 \times 2 \times 3 \times 3}$$

# √の計算

$$\begin{aligned}\sqrt{72} &= \sqrt{2 \times 2 \times 2 \times 3 \times 3} \\ &= \sqrt{2 \times 2 \times 2 \times 3 \times 3} \\ &= 2 \times 3 \sqrt{2} \\ &= 6\sqrt{2}\end{aligned}$$

ペアになると√の外に出すことができる

# √の計算

$$2\sqrt{5} + 6\sqrt{5}$$

# √の計算

$$\begin{aligned} & 2\sqrt{5} + 6\sqrt{5} \\ &= 8\sqrt{5} \end{aligned}$$

√5 同士なので計算できる  
2 + 6 を計算

# √の計算

$$-2\sqrt{3} + \sqrt{3} + 7\sqrt{3}$$

# √の計算

$$\begin{aligned} & -2\sqrt{3} + \sqrt{3} + 7\sqrt{3} \\ = & -2\sqrt{3} + 1\sqrt{3} + 7\sqrt{3} \end{aligned}$$

# √の計算

$$\begin{aligned} & -2\sqrt{3} + \sqrt{3} + 7\sqrt{3} \\ = & -2\sqrt{3} + 1\sqrt{3} + 7\sqrt{3} \\ = & 6\sqrt{3} \end{aligned}$$

**-2 + 1 + 7 を計算**



# √の計算

$$7\sqrt{3} + 4\sqrt{2} - 5\sqrt{3}$$

# √の計算

$$\begin{aligned} & 7\sqrt{3} + 4\sqrt{2} - 5\sqrt{3} \\ = & 7\sqrt{\mathbf{3}} + 4\sqrt{\mathbf{2}} - 5\sqrt{\mathbf{3}} \end{aligned}$$

# √の計算

$$\begin{aligned} & 7\sqrt{3} + 4\sqrt{2} - 5\sqrt{3} \\ = & 7\sqrt{\mathbf{3}} + 4\sqrt{\mathbf{2}} - 5\sqrt{\mathbf{3}} \\ = & 2\sqrt{3} + 4\sqrt{2} \end{aligned}$$

同じ種類の所は計算可能

# $\sqrt{\quad}$ の計算

$$\sqrt{12} + \sqrt{3}$$

# $\sqrt{\quad}$ の計算

$$\begin{aligned} & \sqrt{12} + \sqrt{3} \\ = & \sqrt{2 \times 2 \times 3} + \sqrt{3} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{12} + \sqrt{3} \\ = & \sqrt{2 \times 2 \times 3} + \sqrt{3} \\ = & 2\sqrt{3} + \sqrt{3} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{12} + \sqrt{3} \\ = & \sqrt{2 \times 2 \times 3} + \sqrt{3} \\ = & 2\sqrt{3} + \sqrt{3} \\ = & 3\sqrt{3} \end{aligned}$$

$a\sqrt{b}$  に出れるときは先に計算

# √の計算

$$\sqrt{18} - 4\sqrt{2} + \sqrt{8}$$



# $\sqrt{\quad}$ の計算

$$\begin{aligned} & \sqrt{18} - 4\sqrt{2} + \sqrt{8} \\ = & \sqrt{2 \times 3 \times 3} - 4\sqrt{2} + \sqrt{2 \times 2 \times 2} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{18} - 4\sqrt{2} + \sqrt{8} \\ = & \sqrt{2 \times 3 \times 3} - 4\sqrt{2} + \sqrt{2 \times 2 \times 2} \\ = & 3\sqrt{2} - 4\sqrt{2} + 2\sqrt{2} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{18} - 4\sqrt{2} + \sqrt{8} \\ = & \sqrt{2 \times 3 \times 3} - 4\sqrt{2} + \sqrt{2 \times 2 \times 2} \\ = & 3\sqrt{2} - 4\sqrt{2} + 2\sqrt{2} \\ = & \sqrt{2} \end{aligned}$$

$a\sqrt{b}$  に出れるときは先に計算

# $\sqrt{\quad}$ の計算

$$\sqrt{3}(\sqrt{7} - \sqrt{2})$$

# $\sqrt{\quad}$ の計算

$$\begin{aligned} & \sqrt{3}(\sqrt{7} - \sqrt{2}) \\ = & \sqrt{3} \times \sqrt{7} - \sqrt{3} \times \sqrt{2} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{3}(\sqrt{7} - \sqrt{2}) \\ = & \sqrt{3} \times \sqrt{7} - \sqrt{3} \times \sqrt{2} \\ = & \sqrt{21} - \sqrt{6} \end{aligned}$$

$\sqrt{21}, \sqrt{6}$  はもう簡単にはできない

# √の計算

$$\sqrt{2}(\sqrt{10} + \sqrt{6})$$

# √の計算

$$\begin{aligned} & \sqrt{2}(\sqrt{10} + \sqrt{6}) \\ = & \sqrt{2} \times \sqrt{10} + \sqrt{2} \times \sqrt{6} \end{aligned}$$



# √の計算

$$\begin{aligned} & \sqrt{2}(\sqrt{10} + \sqrt{6}) \\ = & \sqrt{2} \times \sqrt{10} + \sqrt{2} \times \sqrt{6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{2}(\sqrt{10} + \sqrt{6}) \\ = & \sqrt{2} \times \sqrt{10} + \sqrt{2} \times \sqrt{6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{2}(\sqrt{10} + \sqrt{6}) \\ = & \sqrt{2} \times \sqrt{10} + \sqrt{2} \times \sqrt{6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \\ = & \sqrt{2 \times 2 \times 5} + \sqrt{2 \times 2 \times 3} \end{aligned}$$

# √の計算

$$\begin{aligned} & \sqrt{2}(\sqrt{10} + \sqrt{6}) \\ = & \sqrt{2} \times \sqrt{10} + \sqrt{2} \times \sqrt{6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \\ = & \sqrt{2 \times 10} + \sqrt{2 \times 6} \\ = & \sqrt{2 \times 2 \times 5} + \sqrt{2 \times 2 \times 3} \\ = & 2\sqrt{5} + 2\sqrt{3} \end{aligned}$$