

$$\sqrt{a} \times \sqrt{b} = \sqrt{a \times b}$$

ex :  $\sqrt{5} \times \sqrt{10} = \sqrt{10 \times 5} = \sqrt{50} = \sqrt{5^2 \times 2} = 5\sqrt{2}$

$50 = 5 \times 5 \times 2 = 5^2 \times 2$

$$\sqrt{8} \times \sqrt{14} = \sqrt{14 \times 8} = \sqrt{\cancel{2} \times 7 \times \cancel{2} \times \cancel{2} \times \cancel{2}} = \cancel{2} \times \cancel{2} \sqrt{7} = 4\sqrt{7}$$

$$\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$$

$$\text{ex} = \frac{\sqrt{10}}{\sqrt{20}} = \sqrt{\frac{10}{20}} = \sqrt{\frac{1}{2}}$$

$$\frac{\sqrt{28}}{\sqrt{40}} = \sqrt{\frac{28}{40}} = \sqrt{\frac{\cancel{2} \times \cancel{2} \times 7}{\cancel{2} \times \cancel{2} \times 2 \times 5}} = \sqrt{\frac{7}{10}}$$

$$ex = \frac{\sqrt{72}}{\sqrt{144}} = \frac{\sqrt{\cancel{2 \times 2 \times 2} \times \cancel{3} \times \cancel{3} \times 1}}{\sqrt{\cancel{2 \times 2 \times 2} \times \cancel{2} \times \cancel{3} \times \cancel{3}}} = \sqrt{\frac{1}{2}}$$

$$72 = 2 \times 36 = 2 \times 2 \times 18 = 2 \times 2 \times 2 \times 9 = 2 \times 2 \times 2 \times 3 \times 3$$

$$144 = 2 \times 72 = 2 \times 2 \times 36 = 2 \times 2 \times 2 \times 18 = 2 \times 2 \times 2 \times 2 \times 9 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b}) = (\sqrt{a})^2 - (\sqrt{b})^2$$

$$= a - b$$

$$\text{ex: } (\sqrt{5} - \sqrt{3})(\sqrt{5} + \sqrt{3}) = (\sqrt{5})^2 - (\sqrt{3})^2$$

$$= 5 - 3 = 2$$

$$5\sqrt{3} + 4\sqrt{7} - 2\sqrt{3} + \sqrt{7} + 6\sqrt{7} =$$

$$4\sqrt{7} + \sqrt{7} + 5\sqrt{3} - 2\sqrt{3} + 6\sqrt{7} =$$

$$5\sqrt{7} + 3\sqrt{3} + 6\sqrt{7}$$

$$\sqrt{2} + \sqrt{8} = \sqrt{2} + 2\sqrt{2} = 3\sqrt{2}$$

$$8 = 2 \times 2 \times 2$$

$$\sqrt{8} = \sqrt{2 \times 2 \times 2} = 2\sqrt{2}$$

$$\begin{aligned}
 \frac{4}{\sqrt{6}-2} &= \frac{4 \times (\sqrt{6}+2)}{(\sqrt{6}-2) \times (\sqrt{6}+2)} = \frac{4(\sqrt{6}+2)}{(\sqrt{6})^2 - 2^2} \\
 &= \frac{4(\sqrt{6}+2)}{6-4} = \frac{4\sqrt{6}+8}{2} = 2\sqrt{6}+4 \\
 &= \frac{4\sqrt{6}}{2} + \frac{8}{2}
 \end{aligned}$$

↗





$$\sqrt{0,03} = \sqrt{\frac{3}{100}} = \frac{\sqrt{3}}{\sqrt{100}} = \frac{\sqrt{3}}{\sqrt{10 \times 10}}$$

$$0,03 = \frac{3}{100} = \frac{\sqrt{3}}{10}$$

$$a\sqrt{b} \times c\sqrt{d} = a \times c \sqrt{b \times d}$$

ex  $5\sqrt{7} \times 3\sqrt{2} = 5 \times 3 \sqrt{7 \times 2} = 15\sqrt{14}$

$$\sqrt{0,2} \times \sqrt{0,6} = \sqrt{\frac{2}{10}} \times \sqrt{\frac{6}{10}}$$

$$0,2 = \frac{2}{10}$$

$$0,6 = \frac{6}{10}$$

$$= \sqrt{\frac{2 \times 6}{10 \times 10}} =$$

$$= \sqrt{\frac{3}{5 \times 5}} = \frac{\sqrt{3}}{\sqrt{5 \times 5}} = \frac{\sqrt{3}}{5} = \frac{1}{5} \sqrt{3}$$

$$= \sqrt{\frac{\cancel{2} \times \cancel{2} \times 3}{\cancel{2} \times 5 \times \cancel{2} \times 5}} = \frac{\sqrt{3}}{5} = \frac{1}{5} \sqrt{3}$$

$$a^m \times a^p = a^{m+p}$$

$$2^3 \times 2^4 = 2^{3+4} = 2^7$$

$$(a^m)^p = a^{m \times p}$$

$$(2^3)^4 = 2^{3 \times 4} = 2^{12}$$

$$\frac{a^m}{a^p} = a^{m-p}$$

$$a^p$$

$$\frac{2^8}{2^5} = 2^{8-5} = 2^3$$

$$2^5$$

$$\frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}}{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}}$$

$$2 \times 2 \times 2$$