

<解説編>

$$\begin{aligned}
 1(6) & (x+2+y)(x-2+y) \\
 &= \frac{(x+y+2)}{A} \cdot \frac{(x+y-2)}{A} \\
 &= (A+2)(A-2) \\
 &= A^2 - 4 \\
 &= (x+y)^2 - 4 \\
 &= \underline{x^2 + 2xy + y^2 - 4}
 \end{aligned}$$

$$\begin{aligned}
 2(3) & 1728 = 2^6 \times 3^3 \quad \left[\begin{array}{l} \text{3乗がわかる!} \\ \text{2乗がわかる!} \end{array} \right] \\
 &= 2^3 \times 2^3 \times 3^3 \\
 &= (2 \times 2 \times 3)^3 \\
 &= 12^3 \quad \underline{A. 12 \times 3 \text{ 乗}}
 \end{aligned}$$

2(4) 24と42の最小公倍数

$$\begin{array}{r}
 2 \overline{) 24 \quad 42} \\
 \underline{12 \quad 21} \\
 3 \overline{) 4 \quad 7}
 \end{array}
 \quad 2 \times 3 \times 4 \times 7 = \underline{168}$$

$$\begin{aligned}
 15) & 140 = 2^2 \times 5 \times 7 \\
 & \quad m = 5 \times 7 = 35 \\
 & 140 \div 35 = 2^2 \times \cancel{5} \times \cancel{7} \div \cancel{35} \\
 & = 2^2 \times 1 \\
 & \underline{A. 35 \text{ だと } 2 \times \text{ 平方}}
 \end{aligned}$$

$$\begin{aligned}
 4(5) & 8(a^2 - 3b) \\
 &= 9(9a^2 - 4) \quad \left[\begin{array}{l} \text{3乗共通因数} \\ \text{2<<<る!!} \end{array} \right] \\
 &= 9(3a+2)(3a-2)
 \end{aligned}$$

$$\begin{aligned}
 18) & a^2 - b^2 + 6bc - 9c^2 \\
 &= a^2 - (b^2 - 6bc + 9c^2) \quad \left[1: 3 - 1 \times 9 = 2 \right] \\
 &= a^2 - \frac{(b-3c)^2}{A} \\
 &= a^2 - A^2
 \end{aligned}$$

$$\begin{aligned}
 19) & \underline{a^2b - 3a^2 - b + 3} \\
 &= a^2 \frac{(b-3)}{A} - \frac{(b-3)}{A} \\
 &= a^2 A - A \\
 &= A(a^2 - 1) \\
 &= (b-3)(a^2 - 1) \quad \left[\text{3乗わかる!} \right] \\
 &= \underline{(b-3)(a+1)(a-1)}
 \end{aligned}$$

$$\begin{aligned}
 &= (a+A)(a-A) \\
 &= (a+b-3c) \{ a - (b-3c) \} \\
 &= (a+b-3c)(a-b+3c)
 \end{aligned}$$

6(4) $\frac{2}{7} = 2 \div 7 = 0.285714285714...$
筆算でわかる!

15) $1.2\bar{7} = x$ $100x = 127.\bar{27}$
 $\rightarrow x = \underline{1.2\bar{7}} \text{ なら } x = \underline{\frac{14}{11}}$

5(1) $a^3 - 2a^2b + ab^2 = a(a-b)^2 = \underline{147}$

(2) $x^3 + 3xy + y^3 = (x+y)^2 + xy = -\frac{1}{12}$

(3) $x^2 + y^2 = (x+y)^2 - 2xy \leftarrow \text{代入}$

$13 = 5^2 - 2xy \leftarrow \text{2乗に2乗で解く}$

$\underline{xy = 6}$

$$9. (1) \sqrt{15} \times \sqrt{30}$$

$$= \sqrt{15 \times 15 \times 2}$$

$$= 15\sqrt{2}$$

$$(2) \sqrt{75} \times \sqrt{12}$$

$$= 5\sqrt{3} \times 2\sqrt{3}$$

$$= 30$$

$$(3) \sqrt{54} \div 24$$

$$= 3\sqrt{6} \div 2\sqrt{6}$$

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

$$= \frac{3}{2}$$

$$(4) 6 \div \sqrt{3}$$

$$= \frac{6 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}}$$

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

$$= 2\sqrt{3}$$

$$(5) \sqrt{18} \div 6 \times (-\sqrt{8})$$

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

$$= -2$$

$$(6) \sqrt{27} \div \frac{1}{\sqrt{2}} \times \frac{2}{\sqrt{3}}$$

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

$$= 6\sqrt{2}$$

$$(7) 2\sqrt{27} \div \sqrt{8} \div \sqrt{8}$$

$$= \frac{6\sqrt{3}}{2\sqrt{8} \times \sqrt{8}}$$

$$= \frac{6}{4} = \frac{3}{2}$$

$$(8) \sqrt{\frac{10}{9}} \div 2 \times \sqrt{\frac{12}{5}}$$

$$= \frac{\sqrt{10} \times 2\sqrt{3}}{3\sqrt{9} \times 2 \times \sqrt{5}}$$

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

$$10 \quad \sqrt{1.5} = 1.225 \quad \sqrt{15} = 3.875$$

$$(1) \sqrt{1500}$$

$$= \sqrt{1.5 \times 1000}$$

$$= \sqrt{1.5} \times 10$$

$$= 12.25$$

$$(2) \sqrt{0.0015}$$

$$= \sqrt{\frac{15}{10000}}$$

$$= \frac{1}{100} \times \sqrt{15}$$

$$= 0.03875$$

$$(3) \sqrt{60}$$

$$= \sqrt{15 \times 4}$$

$$= 2 \times \sqrt{15}$$

$$= 2 \times 3.875$$

$$= 7.75$$

$$60 \div 1.5 = 40 \times$$

$$60 \div 15 = 4 \quad \text{ok!}$$

$$(4) \sqrt{6}$$

$$= \sqrt{1.5 \times 4}$$

$$= 2 \times \sqrt{1.5}$$

$$= 2 \times 1.225$$

$$= 2.45$$

$$6 \div 1.5 = 4 \quad \text{ok!}$$

$$6 \div 15 = 0.4 \times$$

$$\textcircled{\text{※}} \quad \sqrt{1.5 \times \square^2}$$

$$\sqrt{15 \times \square^2} \quad \text{の形にする!}$$