

$$\begin{aligned}
 (9) \quad & 15x^2 - 22xy + 8y^2 \\
 & = 15x^2 - 22y \cdot x + 8y^2 \\
 & = (3x - 2y)(5x - 4y)
 \end{aligned}$$

$$\begin{array}{r}
 3 \times -2y \longrightarrow -10y \\
 5 \times -4y \longrightarrow -12y \\
 \hline
 -22y
 \end{array}$$

$$\begin{aligned}
 (10) \quad & 6x^2 + 23xy - 18y^2 \\
 & = 6x^2 + 23y \cdot x - 18y^2 \\
 & = (2x + 9y)(3x - 2y)
 \end{aligned}$$

$$\begin{array}{r}
 2 \times 9y \longrightarrow 27y \\
 3 \times -2y \longrightarrow -4y \\
 \hline
 23y
 \end{array}$$

$$\begin{aligned}
 6 \quad (1) \quad & 2x^3 - 12x^2 + 18x \\
 & = 2x(x^2 - 6x + 9) \\
 & = 2x(x - 3)^2
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad & ax^2 - 9ay^2 \\
 & = a(x^2 - 9y^2) \\
 & = a\{x^2 - (3y)^2\} \\
 & = a(x + 3y)(x - 3y)
 \end{aligned}$$

$$\begin{aligned}
 (3) \quad & x - 3y = A \text{ とおくと} \\
 & x(x - 3y) - 4y(3y - x) \\
 & = x(x - 3y) + 4y(x - 3y) \\
 & = xA + 4yA \\
 & = (x + 4y)A \\
 & = (x + 4y)(x - 3y)
 \end{aligned}$$

$$\begin{aligned}
 (4) \quad & 2x + y = A \text{ とおくと} \\
 & (2x + y)^2 + 6(2x + y) - 7 \\
 & = A^2 + 6A - 7 \\
 & = (A + 7)(A - 1) \\
 & = (2x + y + 7)(2x + y - 1)
 \end{aligned}$$

$$\begin{aligned}
 (5) \quad & x - y = A \text{ とおくと} \\
 & 2(x - y)^2 + (y - x) - 3 \\
 & = 2(x - y)^2 - (x - y) - 3 \\
 & = 2A^2 - A - 3 \\
 & = (A + 1)(2A - 3) \\
 & = (x - y + 1)(2x - 2y - 3)
 \end{aligned}$$

$$\begin{array}{r}
 1 \times 1 \longrightarrow 2 \\
 2 \times -3 \longrightarrow -3 \\
 \hline
 -1
 \end{array}$$

$$\begin{aligned}
 (6) \quad & b \text{ について整理すると} \\
 & a^2b - 3ab + a + 2b - 2 \\
 & = (a^2 - 3a + 2)b + (a - 2) \\
 & = (a - 2)(a - 1)b + (a - 2) \\
 & = (a - 2)\{(a - 1)b + 1\} \\
 & = (a - 2)(ab - b + 1)
 \end{aligned}$$

$$\begin{aligned}
 (7) \quad & x \text{ について整理すると} \\
 & 2x^2 + 5xy + 2y^2 - 5x - y - 3 \\
 & = 2x^2 + (5y - 5)x + (2y^2 - y - 3) \\
 & = 2x^2 + (5y - 5)x + (y + 1)(2y - 3) \\
 & = \{x + (2y - 3)\}\{2x + (y + 1)\} \\
 & = (x + 2y - 3)(2x + y + 1)
 \end{aligned}$$

$$\begin{array}{r}
 1 \times 1 \longrightarrow 2 \\
 2 \times -3 \longrightarrow -3 \\
 \hline
 -1
 \end{array}$$

$$\begin{array}{r}
 1 \times 2y - 3 \longrightarrow 4y - 6 \\
 2 \times y + 1 \longrightarrow y + 1 \\
 \hline
 5y - 5
 \end{array}$$

$$\begin{aligned}
 (8) \quad & x \text{ について整理すると} \\
 & x^2 - y^2 + 4x + 6y - 5 \\
 & = x^2 + 4x - (y^2 - 6y + 5) \\
 & = x^2 + 4x - (y - 1)(y - 5) \\
 & = \{x + (y - 1)\}\{x - (y - 5)\} \\
 & = (x + y - 1)(x - y + 5)
 \end{aligned}$$

2 節 実数

1 実数

教科書 P.24

問 1 (1) $0.3 = \frac{3}{10}$

(2) $2.04 = \frac{204}{100} = \frac{51}{25}$

(3) $0.025 = \frac{25}{1000} = \frac{1}{40}$

教科書 P.25

問 2 (1) $\frac{5}{6} = 0.8333\cdots = 0.8\dot{3}$

(2) $\frac{3}{11} = 0.272727\cdots = 0.2\dot{7}$

(3) $\frac{7}{27} = 0.259259259\cdots = 0.2\dot{5}9$



循環小数を分数で表す

問1 $x = 0.\dot{2}7$ とおくと, $x = 0.272727\cdots$ であるから

$$100x = 27.2727\cdots$$

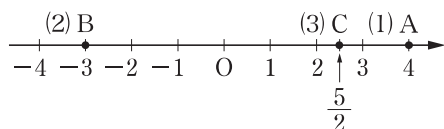
$$\text{よって} \quad 100x = 27.2727\cdots$$

$$\begin{array}{r} 99x = 27 \\ -) \quad x = 0.2727\cdots \\ \hline 99x = 27 \end{array}$$

$$\text{したがって} \quad 0.\dot{2}7 = \frac{3}{11}$$

教科書 P.27

問3



教科書 P.28

問4 (1) $|4| = 4$ (2) $|-5| = 5$

(3) $|0| = 0$

問5 $x = 7$ と $x = -7$

問6 (1) $|2-7| = |-5| = 5$

(2) $\left|\frac{1}{3} - \frac{1}{4}\right| = \left|\frac{1}{12}\right| = \frac{1}{12}$

(3) $\sqrt{2} < 2$ であるから

$$|\sqrt{2} - 2| = -(\sqrt{2} - 2) = 2 - \sqrt{2}$$

2 根号を含む式の計算

教科書 P.29

問7 (1) $\sqrt{7}, -\sqrt{7}$

(2) $9, -9$

(3) $\frac{1}{2}, -\frac{1}{2}$

教科書 P.30

問8 (1) $\sqrt{3}\sqrt{7} = \sqrt{3 \times 7} = \sqrt{21}$

(2) $\frac{\sqrt{42}}{\sqrt{6}} = \sqrt{\frac{42}{6}} = \sqrt{7}$

問9 (1) $\sqrt{8} = \sqrt{2^2 \times 2} = \sqrt{2^2} \times \sqrt{2} = 2\sqrt{2}$

(2) $\sqrt{24} = \sqrt{2^2 \times 6} = \sqrt{2^2} \times \sqrt{6} = 2\sqrt{6}$

(3) $\sqrt{50} = \sqrt{5^2 \times 2} = \sqrt{5^2} \times \sqrt{2} = 5\sqrt{2}$

(4) $\sqrt{\frac{32}{9}} = \frac{\sqrt{32}}{\sqrt{9}} = \frac{\sqrt{4^2 \times 2}}{\sqrt{3^2}} = \frac{\sqrt{4^2} \times \sqrt{2}}{\sqrt{3^2}} = \frac{4\sqrt{2}}{3}$

(5) $\sqrt{\frac{27}{16}} = \frac{\sqrt{27}}{\sqrt{16}} = \frac{\sqrt{3^2 \times 3}}{\sqrt{4^2}}$

$$= \frac{\sqrt{3^2} \times \sqrt{3}}{\sqrt{4^2}} = \frac{3\sqrt{3}}{4}$$

問10 (1) $\sqrt{6} \times \sqrt{8} = \sqrt{6 \times 8} = \sqrt{2 \times 3 \times 2^3}$
 $= \sqrt{2^4 \times 3} = \sqrt{4^2 \times 3} = 4\sqrt{3}$

(2) $\sqrt{20} \times \sqrt{10} = \sqrt{20 \times 10} = \sqrt{2 \times 10 \times 10}$
 $= \sqrt{10^2 \times 2} = 10\sqrt{2}$

(3) $\sqrt{15} \times \sqrt{21} = \sqrt{15 \times 21} = \sqrt{3 \times 5 \times 3 \times 7}$
 $= \sqrt{3^2 \times 5 \times 7} = 3\sqrt{35}$

(4) $\sqrt{12} \times \sqrt{8} \times \sqrt{24} = 2\sqrt{3} \times 2\sqrt{2} \times 2\sqrt{6}$
 $= 8\sqrt{3 \times 2 \times 6} = 8\sqrt{6^2} = 8 \cdot 6 = 48$

教科書 P.31

問11 (1) $\sqrt{7} - 3\sqrt{7} + 4\sqrt{7} = (1-3+4)\sqrt{7}$
 $= 2\sqrt{7}$

(2) $\sqrt{48} + 2\sqrt{3} = \sqrt{4^2 \times 3} + 2\sqrt{3}$
 $= 4\sqrt{3} + 2\sqrt{3} = 6\sqrt{3}$

(3) $\sqrt{20} + \sqrt{\frac{5}{9}} = \sqrt{2^2 \times 5} + \frac{\sqrt{5}}{\sqrt{3^2}}$
 $= 2\sqrt{5} + \frac{\sqrt{5}}{3}$
 $= \left(2 + \frac{1}{3}\right)\sqrt{5} = \frac{7\sqrt{5}}{3}$

(4) $\sqrt{\frac{3}{16}} - \sqrt{\frac{12}{25}} = \frac{\sqrt{3}}{\sqrt{4^2}} - \frac{\sqrt{2^2 \times 3}}{\sqrt{5^2}}$
 $= \frac{\sqrt{3}}{4} - \frac{2\sqrt{3}}{5}$
 $= \left(\frac{1}{4} - \frac{2}{5}\right)\sqrt{3}$
 $= -\frac{3\sqrt{3}}{20}$

(5) $\sqrt{72} - \sqrt{75} + \sqrt{108} - \sqrt{128}$
 $= \sqrt{6^2 \times 2} - \sqrt{5^2 \times 3} + \sqrt{6^2 \times 3} - \sqrt{8^2 \times 2}$
 $= 6\sqrt{2} - 5\sqrt{3} + 6\sqrt{3} - 8\sqrt{2}$
 $= \sqrt{3} - 2\sqrt{2}$

問12 (1) $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$
 $= (\sqrt{5})^2 - (\sqrt{3})^2 = 5 - 3 = 2$

(2) $(2\sqrt{2} + 3)^2$
 $= (2\sqrt{2})^2 + 2 \times 2\sqrt{2} \times 3 + 3^2$
 $= 8 + 12\sqrt{2} + 9$
 $= 17 + 12\sqrt{2}$

(3) $(\sqrt{15} - \sqrt{6})^2$
 $= (\sqrt{15})^2 - 2 \times \sqrt{15} \times \sqrt{6} + (\sqrt{6})^2$

$$= 15 - 2\sqrt{15 \times 6} + 6$$

$$= 21 - 2\sqrt{3^2 \times 10}$$

$$= 21 - 6\sqrt{10}$$

$$\begin{aligned} (4) \quad & (3\sqrt{2} + \sqrt{3})(\sqrt{2} + 2\sqrt{3}) \\ &= 3\sqrt{2} \times \sqrt{2} + 3\sqrt{2} \times 2\sqrt{3} + \sqrt{3} \times \sqrt{2} \\ & \quad + \sqrt{3} \times 2\sqrt{3} \\ &= 6 + 6\sqrt{6} + \sqrt{6} + 6 \\ &= 12 + 7\sqrt{6} \end{aligned}$$

教科書 P.32

$$\text{問13 (1)} \quad \frac{1}{\sqrt{5}} = \frac{1 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} = \frac{\sqrt{5}}{5}$$

$$(2) \quad \frac{6}{\sqrt{3}} = \frac{6 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} = \frac{6\sqrt{3}}{3} = 2\sqrt{3}$$

$$(3) \quad \frac{1}{\sqrt{18}} = \frac{1}{3\sqrt{2}} = \frac{1 \times \sqrt{2}}{3\sqrt{2} \times \sqrt{2}} = \frac{\sqrt{2}}{6}$$

$$\begin{aligned} (4) \quad \frac{6}{\sqrt{24}} &= \frac{6}{2\sqrt{6}} = \frac{6 \times \sqrt{6}}{2\sqrt{6} \times \sqrt{6}} \\ &= \frac{6 \times \sqrt{6}}{2 \times 6} = \frac{\sqrt{6}}{2} \end{aligned}$$

$$\begin{aligned} \text{問14 (1)} \quad \frac{1}{\sqrt{3} + \sqrt{2}} &= \frac{\sqrt{3} - \sqrt{2}}{(\sqrt{3} + \sqrt{2})(\sqrt{3} - \sqrt{2})} \\ &= \frac{\sqrt{3} - \sqrt{2}}{(\sqrt{3})^2 - (\sqrt{2})^2} \\ &= \frac{\sqrt{3} - \sqrt{2}}{3 - 2} \\ &= \sqrt{3} - \sqrt{2} \end{aligned}$$

$$\begin{aligned} (2) \quad \frac{5}{\sqrt{7} - \sqrt{2}} &= \frac{5(\sqrt{7} + \sqrt{2})}{(\sqrt{7} - \sqrt{2})(\sqrt{7} + \sqrt{2})} \\ &= \frac{5(\sqrt{7} + \sqrt{2})}{(\sqrt{7})^2 - (\sqrt{2})^2} \\ &= \frac{5(\sqrt{7} + \sqrt{2})}{7 - 2} \\ &= \frac{5(\sqrt{7} + \sqrt{2})}{5} \\ &= \sqrt{7} + \sqrt{2} \end{aligned}$$

$$\begin{aligned} (3) \quad \frac{\sqrt{7} + 3}{\sqrt{7} - 3} &= \frac{(\sqrt{7} + 3)^2}{(\sqrt{7} - 3)(\sqrt{7} + 3)} \\ &= \frac{(\sqrt{7})^2 + 2 \times \sqrt{7} \times 3 + 3^2}{(\sqrt{7})^2 - 3^2} \\ &= \frac{7 + 6\sqrt{7} + 9}{7 - 9} \\ &= \frac{16 + 6\sqrt{7}}{-2} \end{aligned}$$

$$= -8 - 3\sqrt{7}$$

教科書 P.33

$$\text{問15} \quad x = \frac{\sqrt{7} + \sqrt{5}}{(\sqrt{7} - \sqrt{5})(\sqrt{7} + \sqrt{5})} = \frac{\sqrt{7} + \sqrt{5}}{2}$$

$$y = \frac{\sqrt{7} - \sqrt{5}}{(\sqrt{7} + \sqrt{5})(\sqrt{7} - \sqrt{5})} = \frac{\sqrt{7} - \sqrt{5}}{2}$$

$$(1) \quad x + y = \frac{\sqrt{7} + \sqrt{5}}{2} + \frac{\sqrt{7} - \sqrt{5}}{2} = \sqrt{7}$$

$$(2) \quad xy = \frac{\sqrt{7} + \sqrt{5}}{2} \times \frac{\sqrt{7} - \sqrt{5}}{2}$$

$$= \frac{(\sqrt{7})^2 - (\sqrt{5})^2}{2^2}$$

$$= \frac{7 - 5}{4} = \frac{1}{2}$$

$$(3) \quad x^2 + y^2 = (x + y)^2 - 2xy$$

$$= (\sqrt{7})^2 - 2 \times \frac{1}{2}$$

$$= 7 - 1$$

$$= 6$$

Training トレーニング

$$7 \quad (1) \quad |a| + |b| = |5| + |-8|$$

$$= 5 + 8 = 13$$

$$(2) \quad |a + b| = |5 + (-8)|$$

$$= |-3| = 3$$

$$(3) \quad |a| - |b| = |5| - |-8|$$

$$= 5 - 8 = -3$$

$$(4) \quad |a - b| = |5 - (-8)|$$

$$= |13| = 13$$

$$\begin{aligned} 8 \quad (1) \quad \sqrt{13} \times \sqrt{65} \times \sqrt{15} &= \sqrt{13 \times 65 \times 15} \\ &= \sqrt{13 \times 13 \times 5 \times 3 \times 5} = \sqrt{13^2 \times 5^2 \times 3} \\ &= 13 \times 5 \times \sqrt{3} \\ &= 65\sqrt{3} \end{aligned}$$

$$\begin{aligned} (2) \quad \sqrt{12} + \sqrt{48} - \sqrt{27} \\ &= \sqrt{2^2 \times 3} + \sqrt{4^2 \times 3} - \sqrt{3^2 \times 3} \\ &= 2\sqrt{3} + 4\sqrt{3} - 3\sqrt{3} = 3\sqrt{3} \end{aligned}$$

$$\begin{aligned} (3) \quad (\sqrt{7} + \sqrt{6})^2 \\ &= (\sqrt{7})^2 + 2 \times \sqrt{7} \times \sqrt{6} + (\sqrt{6})^2 \\ &= 7 + 2\sqrt{42} + 6 = 13 + 2\sqrt{42} \end{aligned}$$

$$\begin{aligned} (4) \quad (2\sqrt{3} - \sqrt{5})^2 \\ &= (2\sqrt{3})^2 - 2 \times 2\sqrt{3} \times \sqrt{5} + (\sqrt{5})^2 \\ &= 12 - 4\sqrt{15} + 5 \end{aligned}$$

$$= 17 - 4\sqrt{15}$$

$$\begin{aligned} (5) \quad & (\sqrt{2} - 3)(3\sqrt{2} + 1) \\ &= \sqrt{2} \times 3\sqrt{2} + \sqrt{2} \times 1 - 3 \times 3\sqrt{2} - 3 \times 1 \\ &= 6 + \sqrt{2} - 9\sqrt{2} - 3 \\ &= 3 - 8\sqrt{2} \end{aligned}$$

$$\begin{aligned} (6) \quad & 8(4 - \sqrt{7}) - (4 - \sqrt{7})^2 \\ &= (4 - \sqrt{7})\{8 - (4 - \sqrt{7})\} \\ &= (4 - \sqrt{7})(4 + \sqrt{7}) \\ &= 4^2 - (\sqrt{7})^2 \\ &= 16 - 7 \\ &= 9 \end{aligned}$$

$$\begin{aligned} 9 \quad (1) \quad & \frac{6}{\sqrt{75}} = \frac{6}{\sqrt{5^2 \times 3}} = \frac{6}{5\sqrt{3}} \\ &= \frac{6 \times \sqrt{3}}{5\sqrt{3} \times \sqrt{3}} = \frac{6\sqrt{3}}{15} \\ &= \frac{2\sqrt{3}}{5} \end{aligned}$$

$$\begin{aligned} (2) \quad & \frac{4\sqrt{5}}{\sqrt{54}} = \frac{4\sqrt{5}}{\sqrt{3^2 \times 6}} = \frac{4\sqrt{5}}{3\sqrt{6}} \\ &= \frac{4\sqrt{5} \times \sqrt{6}}{3\sqrt{6} \times \sqrt{6}} = \frac{4\sqrt{30}}{18} \\ &= \frac{2\sqrt{30}}{9} \end{aligned}$$

$$\begin{aligned} (3) \quad & \frac{\sqrt{5} + 1}{\sqrt{5} - 1} = \frac{(\sqrt{5} + 1)^2}{(\sqrt{5} - 1)(\sqrt{5} + 1)} \\ &= \frac{(\sqrt{5})^2 + 2 \times \sqrt{5} \times 1 + 1^2}{(\sqrt{5})^2 - 1^2} \\ &= \frac{5 + 2\sqrt{5} + 1}{5 - 1} = \frac{6 + 2\sqrt{5}}{4} \\ &= \frac{3 + \sqrt{5}}{2} \end{aligned}$$

$$\begin{aligned} (4) \quad & \frac{\sqrt{2} + 2\sqrt{3}}{2\sqrt{2} + \sqrt{3}} \\ &= \frac{(\sqrt{2} + 2\sqrt{3})(2\sqrt{2} - \sqrt{3})}{(2\sqrt{2} + \sqrt{3})(2\sqrt{2} - \sqrt{3})} \\ &= \frac{\sqrt{2} \times 2\sqrt{2} - \sqrt{2} \times \sqrt{3} + 2\sqrt{3} \times 2\sqrt{2} - 2\sqrt{3} \times \sqrt{3}}{(2\sqrt{2})^2 - (\sqrt{3})^2} \\ &= \frac{4 - \sqrt{6} + 4\sqrt{6} - 6}{8 - 3} \\ &= \frac{-2 + 3\sqrt{6}}{5} \end{aligned}$$

$$10 \quad x = \frac{\sqrt{5} - 2}{(\sqrt{5} + 2)(\sqrt{5} - 2)} = \sqrt{5} - 2$$

$$y = \frac{\sqrt{5} + 2}{(\sqrt{5} - 2)(\sqrt{5} + 2)} = \sqrt{5} + 2$$

$$x + y = (\sqrt{5} - 2) + (\sqrt{5} + 2) = 2\sqrt{5}$$

$$xy = (\sqrt{5} - 2)(\sqrt{5} + 2) = (\sqrt{5})^2 - 2^2 = 1$$

$$\begin{aligned} (1) \quad x^2 + xy + y^2 &= (x + y)^2 - xy \\ &= (2\sqrt{5})^2 - 1 \\ &= 20 - 1 = 19 \end{aligned}$$

$$\begin{aligned} (2) \quad \frac{y}{x} + \frac{x}{y} &= \frac{y^2 + x^2}{xy} = \frac{(x + y)^2 - 2xy}{xy} \\ &= \frac{(2\sqrt{5})^2 - 2 \times 1}{1} \\ &= 20 - 2 = 18 \end{aligned}$$

Challenge チャレンジ 例題 整数部分と小数部分

教科書 P.34

$$\begin{aligned} \text{問 1} \quad (1) \quad & \frac{1}{\sqrt{5} - 2} = \frac{\sqrt{5} + 2}{(\sqrt{5} - 2)(\sqrt{5} + 2)} \\ &= \frac{\sqrt{5} + 2}{5 - 4} = \sqrt{5} + 2 \end{aligned}$$

$$2^2 < 5 < 3^2 \quad \text{より} \quad 2 < \sqrt{5} < 3$$

よって $\sqrt{5}$ の整数部分は 2

したがって、 $\frac{1}{\sqrt{5} - 2} = \sqrt{5} + 2$ の整数部

分 a は $a = 2 + 2 = 4$

また、小数部分 b は

$$b = \frac{1}{\sqrt{5} - 2} - a = (\sqrt{5} + 2) - 4 = \sqrt{5} - 2$$

すなわち $a = 4$, $b = \sqrt{5} - 2$

$$\begin{aligned} (2) \quad & \frac{3}{\sqrt{7} - 2} = \frac{3(\sqrt{7} + 2)}{(\sqrt{7} - 2)(\sqrt{7} + 2)} \\ &= \frac{3(\sqrt{7} + 2)}{7 - 4} = \frac{3(\sqrt{7} + 2)}{3} \\ &= \sqrt{7} + 2 \end{aligned}$$

$$2^2 < 7 < 3^2 \quad \text{より} \quad 2 < \sqrt{7} < 3$$

よって $\sqrt{7}$ の整数部分は 2

したがって、 $\frac{3}{\sqrt{7} - 2} = \sqrt{7} + 2$ の整数部

分 a は $a = 2 + 2 = 4$

また、小数部分 b は

$$b = \frac{3}{\sqrt{7} - 2} - a = (\sqrt{7} + 2) - 4 = \sqrt{7} - 2$$

すなわち $a = 4$, $b = \sqrt{7} - 2$

教科書 P.35

- 問1 (1) $\sqrt{4+2\sqrt{3}} = \sqrt{(3+1)+2\sqrt{3}\times 1}$
 $= \sqrt{3} + 1$
- (2) $\sqrt{6-2\sqrt{8}} = \sqrt{(4+2)-2\sqrt{4}\times 2}$
 $= \sqrt{4} - \sqrt{2} = 2 - \sqrt{2}$
- (3) $\sqrt{7+\sqrt{24}} = \sqrt{7+2\sqrt{6}}$
 $= \sqrt{(6+1)+2\sqrt{6}\times 1}$
 $= \sqrt{6} + 1$
- (4) $\sqrt{11-4\sqrt{6}} = \sqrt{11-2\sqrt{24}}$
 $= \sqrt{(8+3)-2\sqrt{8}\times 3}$
 $= \sqrt{8} - \sqrt{3} = 2\sqrt{2} - \sqrt{3}$

3 節 1次不等式

① 不等式の性質

教科書 P.36

- 問1 (1) $3x - 8 < 10$
 (2) $2a + 3b \geq 300$

教科書 P.37

- 問2 (1) $2a = -20, 2b = 4$ より
 $2a < 2b$
 $\frac{a}{2} = -5, \frac{b}{2} = 1$ より
 $\frac{a}{2} < \frac{b}{2}$
- (2) $2a = -12, 2b = -4$ より
 $2a < 2b$
 $\frac{a}{2} = -3, \frac{b}{2} = -1$ より
 $\frac{a}{2} < \frac{b}{2}$

- 問3 (1) $(-2)a = 12, (-2)b = -8$ より
 $(-2)a > (-2)b$
 $\frac{a}{-2} = 3, \frac{b}{-2} = -2$ より
 $\frac{a}{-2} > \frac{b}{-2}$
- (2) $(-2)a = 16, (-2)b = 4$ より
 $(-2)a > (-2)b$
 $\frac{a}{-2} = 4, \frac{b}{-2} = 1$ より
 $\frac{a}{-2} > \frac{b}{-2}$

② 1次不等式

教科書 P.38

- 問4 (1) $x + 7 > 4$
 7を右辺に移項すると
 $x > 4 - 7$
 $x > -3$
- (2) $x - 5 \leq -3$
 -5を右辺に移項すると
 $x \leq -3 + 5$
 $x \leq 2$

教科書 P.39

- 問5 (1) $8x - 9 < 7$
 -9を右辺に移項すると
 $8x < 7 + 9$
 整理すると $8x < 16$
 両辺を8で割ると $x < 2$
- (2) $3x + 27 \geq 0$
 27を右辺に移項すると $3x \geq -27$
 両辺を3で割ると $x \geq -9$

- 問6 (1) $9x + 4 < 7x - 6$
 4を右辺に, $7x$ を左辺に移項すると
 $9x - 7x < -6 - 4$
 整理すると $2x < -10$
 両辺を2で割ると $x < -5$
- (2) $4 - 9x \geq 1 - 3x$
 4を右辺に, $-3x$ を左辺に移項すると
 $-9x + 3x \geq 1 - 4$
 整理すると $-6x \geq -3$
 両辺を-6で割ると $x \leq \frac{1}{2}$

教科書 P.40

- 問7 (1) $4(x+1) > x-5$
 $4x+4 > x-5$
 $3x > -9$
 両辺を3で割ると $x > -3$
- (2) $6x - 3(2x-5) < 4x+5$
 $6x - 6x + 15 < 4x+5$
 $-4x < -10$
 両辺を-4で割ると $x > \frac{5}{4}$

- 問8 (1) $\frac{x-1}{4} \leq 2-x$

不等式の両辺に4を掛けて