

問1 (p5)

- (1) 単項式：①, ③, ④ 多項式：②, ⑤, ⑥
 (2) ① 2次式 ② 2次式 ③ 5次式
 ④ 2次式 ⑤ 2次式 ⑥ 1次式

問2

- (1) 項： $2x^2$, $-xy^2$, $7xy$, -9
 係数： x^2 の係数2, xy^2 の係数 -1 , xy の係数7
 次数：3次式

$$(2) \frac{3xy - 4x^2 + 6xyz}{2}$$

$$= \frac{3xy}{2} - \frac{4x^2}{2} + \frac{6xyz}{2}$$

$$= \frac{3}{2}xy - 2x^2 + 3xyz$$

$$\text{項：} \frac{3xy}{2}, -2x^2, 3xyz$$

$$\text{係数：} xy \text{の係数} \frac{3}{2}, x^2 \text{の係数} -2, xyz \text{の係数} 3$$

$$\text{次数：3次式}$$

問3 (p7)

- (1) $2a + b + 7$ (2) $-2a - 3b - 2$
 (3) $-4x + 15y$ (4) $-5m - 5n + 11$

問4

- (1) (与式) $= 3x - 2y + 7x + 5y = 10x + 3y$
 (2) (与式) $= 3x - 6y - 7x - 5y = -4x - 11y$
 (3) (与式) $= 8x - 2y - 5x + 10y = 3x + 8y$

問5

- (1) $2x - 7y$ (2) $a - 3b + 1$

$$\begin{array}{r} +) 8x + 2y \\ \hline 10x - 5y \end{array}$$

$$\begin{array}{r} -) 3a + 4b \\ \hline -2a - 7b + 1 \end{array}$$

(3) $7x - 9y + 13$

$$\begin{array}{r} -) -2x + y - 8 \\ \hline 9x - 10y + 21 \end{array}$$

演習1 (p8)

- (1) $6a + b$ (2) $a + 6$ (3) $7x - 2y$
 (4) $7a - 15b$ (5) $7x + 6y$ (6) $8x - 9y$
 (7) $8a + 7b$ (8) $8x - 9y$ (9) $3a - 6b$
 (10) $15a - 8b$

演習2 (p9)

- (1) $-8a + 5b + 3$
 (2) $8x - y$
 (3) $3x^2 - 2$
 (4) $x + \frac{1}{12}y \left(= x + \frac{y}{12} \right)$
 (5) $\frac{1}{2}x - \frac{1}{2}y \left(= \frac{x}{2} - \frac{y}{2} \text{ or } = \frac{x-y}{2} \right)$
 (6) $a - 4b$

演習3 (p11)

(2)以降は、通常の計算の流れをお見せしました。

$$(1) \text{ (与式)} = \frac{3x}{6} - \frac{2(x-2y)}{6}$$

$$= \frac{3x - 2(x-2y)}{6}$$

$$= \frac{3x - 2x + 4y}{6}$$

$$= \frac{x + 4y}{6}$$

$$(2) \text{ (与式)} = \frac{5(x-2y) - 2(x+y)}{10}$$

$$= \frac{5x - 10y - 2x - 2y}{10}$$

$$= \frac{3x - 12y}{10}$$

$$(3) \text{ (与式)} = \frac{2(a+4b) - 3(3a-b)}{6}$$

$$= \frac{2a + 8b - 9a + 3b}{6}$$

$$= \frac{-7a + 11b}{6}$$

$$(4) \text{ (与式)} = \frac{7a - 3b - 2(a + 2b)}{6}$$

$$= \frac{7a - 3b - 2a - 4b}{6}$$

$$= \frac{5a - 7b}{6}$$

演習 4 (p12)

$$(1) \text{ (与式)} = \frac{7(x - y) - 2(x - 8y)}{14}$$

$$= \frac{7x - 7y - 2x + 16y}{14}$$

$$= \frac{5x + 9y}{14}$$

$$(2) \text{ (与式)} = \frac{3(2a + 3b) - 4(4a - 2b)}{12}$$

$$= \frac{6a + 9b - 16a + 8b}{12}$$

$$= \frac{-10a + 17b}{12}$$

$$(3) \text{ (与式)} = \frac{5(3x + y) - 2(4x - 2y)}{10}$$

$$= \frac{15x + 5y - 8x + 4y}{10}$$

$$= \frac{7x + 9y}{10}$$

$$(4) \text{ (与式)} = \frac{-3(x - 7y) - 2(4x - y)}{6}$$

$$= \frac{-3x + 21y - 8x + 2y}{6}$$

$$= \frac{-11x + 23y}{6}$$

演習 5 (p13)

(1) (2)で違う計算方法をお見せします。(3)以降は(2)の方法で表します。

$$(1) \text{ (与式)} = \frac{1}{6} \{2(2x + 5) - (4x + 3)\}$$

$$= \frac{1}{6} (4x + 10 - 4x - 3)$$

$$= \frac{1}{6} \times 7 = \frac{7}{6}$$

$$(2) \text{ (与式)} = \frac{3(x - 3y) - 2(2x - 3y)}{12}$$

$$= \frac{3x - 9y - 4x + 6y}{12}$$

$$= \frac{-x - 3y}{12} \left(= -\frac{x + 3y}{12} \right)$$

$$(3) \text{ (与式)} = \frac{7(x - 3) - 2(3x - 8)}{14}$$

$$= \frac{7x - 21 - 6x + 16}{14}$$

$$= \frac{x - 5}{14}$$

$$(4) \text{ (与式)} = \frac{3(2x + 3) - 5(x + 2)}{15}$$

$$= \frac{6x + 9 - 5x - 10}{15}$$

$$= \frac{x - 1}{15}$$

演習 6 (p14)

$$(1) \text{ (与式)} = \frac{3(a + 2b) - (2a + 5b)}{3}$$

$$= \frac{3a + 6b - 2a - 5b}{3}$$

$$= \frac{a + b}{3}$$

$$(2) \text{ (与式)} = a + 2b - 3a + 3b = -2a + 5b$$

$$(3) \text{ (与式)} = \frac{5(x - y) - (x - 2y)}{5}$$

$$= \frac{5x - 5y - x + 2y}{5}$$

$$= \frac{4x - 3y}{5}$$

$$(4) \text{ (与式)} = \frac{2(x - y) + (x + 3y)}{2}$$

$$= \frac{2x - 2y + x + 3y}{2}$$

$$= \frac{3x + y}{2}$$

演習 7 (p15)

$$(1) \text{ (与式)} = 2(x - 2y) - 3(x - 3y)$$

$$= 2x - 4y - 3x + 9y$$

$$= -x + 5y$$

$$(2) \text{ (与式)} = \frac{2 \times 2x - 6y - 3(x - 2y)}{6}$$

$$= \frac{4x - 6y - 3x + 6y}{6}$$

$$= \frac{x}{6} \left(= \frac{1}{6} x \right)$$

$$(3) \text{ (与式)} = \frac{5(x - 2y) - 3(6x - y) + 15x}{15}$$

$$= \frac{5x - 10y - 18x + 3y + 15x}{15}$$

$$= \frac{2x - 7y}{15}$$

$$(4) \text{ (与式)} = \frac{3(3x + y) + (5x - y) - 2(4x - 2y)}{6}$$

$$= \frac{9x + 3y + 5x - y - 8x + 4y}{6}$$

$$= \frac{6x + 6y}{6} = x + y$$

演習 8 (p17)

$$(1) 8a^2b \quad (2) 15x^2y \quad (3) -54x^3y^2$$

$$(4) \frac{1}{3} a^3b \quad (5) 2xy^2 \quad (6) -2ab^3$$

$$(7) 3x^5y^2 \quad (8) 5ab^4 \quad (9) 2x^3y$$

$$(10) \frac{27}{8} x^2y^2$$

演習 9

$$(1) 54a^3b \quad (2) 8a^3$$

$$(3) 6a^3b \quad (4) -18a^3b^4$$

演習 10 (p18)

$$(1) \text{ (与式)} = \frac{6 \times x \times y}{3 \times x} = 2y$$

$$(2) \text{ (与式)} = \frac{14 \times a \times a \times b}{2 \times a} = 7ab$$

$$(3) \text{ (与式)} = \frac{8 \times a \times b \times b}{-4 \times b} = -2ab$$

$$(4) \text{ (与式)} = \frac{10 \times x \times x \times x \times y \times y}{5 \times x \times y} = 2x^2y$$

$$(5) \text{ (与式)} = \frac{8 \times x \times y \times y}{2 \times x \times y} = 4y$$

$$(6) \text{ (与式)} = \frac{7 \times x \times x \times x \times y \times y}{x \times y} = 7x^2y$$

$$(7) \text{ (与式)} = \frac{6 \times a \times b \times b}{3 \times a \times b} = 2b$$

$$(8) \text{ (与式)} = \frac{27 \times a \times a \times b}{-9 \times a \times b} = -3a$$

演習 11 (p19)

$$(1) \text{ (与式)} = -3x^{2-1} \times 1 = -3x$$

$$(2) \text{ (与式)} = -3a^{2-1} \times 1 = -3a$$

$$(3) \text{ (与式)} = \frac{-2b^{2-1}}{a^{2-1}} = -\frac{2b}{a}$$

$$(4) \text{ (与式)} = 7a^{3-2}b^{3-1} = 7ab^2$$

$$(5) \text{ (与式)} = -\frac{6}{4} a^{2-1} = -\frac{3}{2} a$$

$$(6) \text{ (与式)} = \frac{2}{12} a^{3-2} \times 1 = \frac{1}{6} a$$

$$(7) \text{ (与式)} = 12a^2b^2 \div 4a^2 = 3 \times 1 \times b^2 = 3b^2$$

$$(8) \text{ (与式)} = 18x^2y^3 \div 9y^2 = 2x^2y^{3-2} = 2x^2y$$

演習 12 (p20)

$$(1) \text{ (与式)} = 4xy \times \frac{3}{2x} = 2y \times 3 = 6y$$

$$(2) \text{ (与式)} = -6xy^2 \times \frac{3}{xy} = -6y \times 3 = -18y$$

$$(3) \text{ (与式)} = \frac{8}{3} x^3y^4 \times \frac{9}{2x^2y}$$

$$= \frac{4}{1} x^{3-2}y^{4-1} \times \frac{3}{1} = 12xy^3$$

$$(4) \text{ (与式)} = \frac{18}{5} x^2y \times \frac{10}{9x} = \frac{2}{1} x^{2-1}y \times \frac{2}{1} = 4xy$$

演習 13 (p21)

$$(1) \text{ (与式)} = 20x^3y \times \frac{1}{5x} \times \frac{1}{2y}$$

$$= 20x^3y \times \frac{1}{10xy}$$

$$= 2x^{3-1} \times 1 = 2x^2$$

$$(2) \text{ (与式)} = 30ab^2 \times \frac{1}{3b} \times \frac{1}{5ab}$$

$$= 30ab^2 \times \frac{1}{15ab^2}$$

$$= 2 \times 1 \times 1 = 2$$

$$\begin{aligned} (3) \quad (\text{与式}) &= -8x^5y^4 \times \left(-\frac{3}{2x^3y}\right) \times \left(-\frac{5}{12xy^3}\right) \\ &= -8x^5y^4 \times \frac{15}{24x^4y^4} \\ &= -\frac{15}{3}x^{5-4} \times 1 = -5x \end{aligned}$$

演習 14

- (1) $3a - 8$ (2) $3a - 2$
 (3) $9ab - 1$ (4) $2a - 5b$
 (5) $2a - 7b$ (6) $4a - 3$
 (7) $xy - 2$ (8) $-3x + 2y$
 (9) $1 - 2b$ (10) $xy + 2$

演習 15 (p23)

- (1) (与式) $= 24x^2y \div 3x = 8xy$
 (2) (与式) $= \frac{1}{3}a \times 9b = 3ab$
 (3) (与式) $= a^3b^4 \div ab^3 = a^2b$
 (4) (与式) $= 5ab \times 5a = 25a^2b$
 (5) (与式) $= 24x^3y^2 \div 8xy = 3x^2y$
 (6) (与式) $= \frac{9}{4}b \times 4ab = 9ab^2$
 (7) (与式) $= 12x^3y^2 \div 2xy = 6x^2y$
 (8) (与式) $= -\frac{5a}{3b} \times 3ab = -5a^2$
 (9) (与式) $= -12a^2b^2 \div 6ab = -2ab$
 (10) (与式) $= -\frac{1}{2}xy \times (-6x) = 3x^2y$
 (11) (与式) $= 24a^3b^3 \div 2a = 12a^2b^3$

演習 16 (p24)

- (1) (与式) $= 12a^3b^2 \div 6ab^2 = 2a^2$
 (2) (与式) $= -3b \times (-a^2) = 3a^2b$
 (3) (与式) $= 8x^3y \div (-2x) = -4x^2y$
 (4) (与式) $= -\frac{5}{2}ab^2 \times (-6ab) = 15a^2b^3$
 (5) (与式) $= \frac{3}{4a}b^2 \times 3ab = \frac{9}{4}b^3$
 (6) (与式) $= -\frac{3}{4b^2} \times 6ab^2 = -\frac{9}{2}a$
 (7) (与式) $= 2a^2b \div 4ab^2 = \frac{2a^2b}{4ab^2} = \frac{a}{2b}$

$$\begin{aligned} (8) \quad (\text{与式}) &= -\frac{16}{10}xy \times \left(-\frac{35}{10}x\right) \div \frac{2}{10}y \\ &= \frac{8}{5}xy \times \frac{7}{2}x \times \frac{10}{2y} \\ &= \frac{8 \times 7 \times 10}{5 \times 2 \times 2}x^2 = 28x^2 \end{aligned}$$

演習 17 (p25)

- (1) (与式) $= -\frac{a^2}{3b} \times \frac{a}{b} = -\frac{a^3}{3b^2}$
 (2) (与式) $= -2a^3b^2 \times \left(-\frac{10}{9} \times \frac{1}{a^2b}\right) \times \frac{3}{8}ab^2$
 $= 2 \times \frac{10}{9} \times \frac{3}{8} \times a^3b^2 \times \frac{1}{a^2b} \times ab^2$
 $= \frac{5}{6}a^2b^3$
 (3) (与式) $= \frac{8}{5}x^3 \times \left(-\frac{15}{4} \times \frac{1}{x^2y}\right) \times xy$
 $= -\frac{8}{5} \times \frac{15}{4} \times x^3 \times \frac{1}{x^2y} \times xy$
 $= -6x^2$
 (4) (与式) $= 6a^2 \times \left(-\frac{1}{2}ab^2\right) \times \frac{1}{9} \times \frac{1}{ab}$
 $= -6 \times \frac{1}{2} \times \frac{1}{9} \times a^2 \times ab^2 \times \frac{1}{ab}$
 $= -\frac{1}{3}a^2b$
 (5) (与式) $= 12ab^2 \times \frac{15}{4} \times \frac{1}{ab} \times \frac{5}{9}a$
 $= 12 \times \frac{15}{4} \times \frac{5}{9} \times ab^2 \times \frac{1}{ab} \times a$
 $= 25ab$

演習 18 (p26)

- (1) (与式) $= 4a^2 \div 2ab \times 3b^3$
 $= 4 \times \frac{1}{2} \times 3 \times a^2 \times \frac{1}{ab} \times b^3$
 $= 6ab^2$
 (2) (与式) $= 18xy \times x^2y \div 9x^2$
 $= 18 \times \frac{1}{9} \times xy \times x^2y \times \frac{1}{x^2}$
 $= 2xy^2$

$$\begin{aligned} (3) \quad (\text{与式}) &= 2a^3b \div 16a^2b^2 \times (-4b) \\ &= 2 \times \frac{1}{16} \times (-4) \times a^3b \times \frac{1}{a^2b^2} \times b \\ &= -\frac{1}{2}a \end{aligned}$$

$$\begin{aligned} (4) \quad (\text{与式}) &= 9a^2 \times 4b \div (-6ab) \\ &= 9 \times 4 \times \left(-\frac{1}{6}\right) \times a^2 \times b \times \frac{1}{ab} \\ &= -6a \end{aligned}$$

$$\begin{aligned} (5) \quad (\text{与式}) &= 18a^2b \div 9b^2 \times (-ab^3) \\ &= -18 \times \frac{1}{9} \times a^2b \times \frac{1}{b^2} \times ab^3 \\ &= -2a^3b^2 \end{aligned}$$

$$\begin{aligned} (6) \quad (\text{与式}) &= -8 \times a^2b^3 \times \frac{1}{4} \times \frac{1}{ab^2} \\ &= -8 \times \frac{1}{4} \times a^2b^3 \times \frac{1}{ab^2} \\ &= -2ab \end{aligned}$$

$$\begin{aligned} (7) \quad (\text{与式}) &= 8x^3y \div 4x^2y^2 \times 5y \\ &= 8 \times \frac{1}{4} \times 5 \times x^3y \times \frac{1}{x^2y^2} \times y \\ &= 10x \end{aligned}$$

$$\begin{aligned} (8) \quad (\text{与式}) &= 4a^2b^2 \times 3a^2b \times \frac{1}{4} \times \frac{1}{ab^2} \\ &= 4 \times 3 \times \frac{1}{4} \times a^2b^2 \times a^2b \times \frac{1}{ab^2} \\ &= 3a^3b \end{aligned}$$

演習 19 (p27)

- (1) (与式) $= -\frac{10}{3}a \times \frac{9}{25}b^2 = -\frac{6}{5}ab^2$
 (2) (与式) $= 36a^3b \div 9a^2b^4 \times \left(-\frac{1}{2}ab^4\right)$
 $= 36 \times \frac{1}{9} \times \left(-\frac{1}{2}\right) \times a^3b \times \frac{1}{a^2b^4} \times ab^4$
 $= -2a^2b$
 (3) (与式) $= 36a^2b^2 \times \frac{2}{3} \times \frac{1}{ab^2} \times \left(-\frac{1}{27}\right)$
 $= 36 \times \frac{2}{3} \times \left(-\frac{1}{27}\right) \times a^2b^2 \times \frac{1}{ab^2}$
 $= -\frac{8}{9}a$

$$(4) \quad (\text{与式}) = 2a + 6a = 8a$$

$$(5) \quad (\text{与式}) = 4a - \frac{4}{3} - 4a = -\frac{4}{3}$$

$$(6) \quad (\text{与式}) = 2a - 6 + 4b + 6 - 4b = 2a$$

演習 20 (p28)

- (1) (与式) $= \frac{24}{(-2)^2} = \frac{24}{4} = 6$
 (2) (与式) $= (-2)^2 + 2 \times (-2) \times 4$
 $= 4 - 16 = -12$
 (3) (与式) $= \frac{2}{3} - 2 \times \frac{1}{4}$
 $= \frac{2}{3} - \frac{1}{2}$
 $= \frac{4}{6} - \frac{3}{6} = \frac{1}{6}$
 (4) (与式) $= 3 \times 2^2 - 2 \times (-3)$
 $= 3 \times 4 + 6$
 $= 12 + 6 = 18$

演習 21 (p29)

- (1) (与式) $= 10a - 4b - 9a + 3b$
 $= a - b$
 $= -2 - 3 = -5$
 (2) (与式) $= \frac{1}{2}xy \times 6x$
 $= 3x^2y$
 $= 3 \times (-2)^2 \times 5$
 $= 3 \times 4 \times 5 = 60$
 (3) (与式) $= \frac{3(3a - 4b) - 2(2a - b)}{6}$
 $= \frac{9a - 12b - 4a + 2b}{6}$
 $= \frac{5a - 10b}{6}$
 $= \frac{5(a - 2b)}{6}$
 $= \frac{5 \times 3}{6} = \frac{5}{2}$

演習 22

$\frac{11}{7} = 1.571\dots$ より, $a = 5, b = 7, c = 1$
 よって, $100a + 10b + c = 100 \times 5 + 10 \times 7 + 1 = 500 + 70 + 1 = 571$

演習 23 (p31)

(1) $3a - 2b = 8$
 $-2b = 8 - 3a$
 $b = \frac{8 - 3a}{-2} \left[= -\frac{1}{2}(8 - 3a) \right]$
 $= \frac{3a - 8}{2} \left[= \frac{1}{2}(3a - 8) \right]$ (答)

(2) $x - 4y - 12 = 0$
 $-4y = -x + 12$
 $y = \frac{-x + 12}{-4} \left[= -\frac{1}{4}(-x + 12) \right]$
 $= \frac{x - 12}{4} \left[= \frac{1}{4}(x - 12) \right]$ (答)

(3) (1) (2) の 2 行目でマイナスの数で両辺をわるのが嫌なので, 別の流れをお見せします。

$2x - 7y = 5 \xrightarrow{-7y \text{ を右辺, } 5 \text{ を左辺に移行し, 両辺をひっくり返す。}}$

$7y = 2x - 5 \xleftarrow{\hspace{2cm}}$
 $y = \frac{2x - 5}{7} \left[= \frac{1}{7}(2x - 5) \right]$ (答)

(4) 【多くの人の流れ】
 $l = 2(a + b)$
 $= 2a + 2b$
 $-2a = 2b - l$
 $a = \frac{-2b + l}{2}$ (答)

【お薦めの流れ】
 $l = 2(a + b)$
 $2(a + b) = l$
 $a + b = \frac{l}{2}$
 $a = \frac{l}{2} - b$ (答)

(5) $4x - \frac{1}{2}y = 6 \xrightarrow{-\frac{1}{2}y \text{ を右辺, } 6 \text{ を左辺に移行し, 両辺をひっくり返す。}}$
 $\frac{1}{2}y = 4x - 6 \xleftarrow{\hspace{2cm}}$
 $y = 8x - 12$ (答)

(6) $a + \frac{b}{3} = 2c$
 $\frac{b}{3} = 2c - a$
 $b = 6c - 3a$ (答)

(7) $V = \frac{1}{3}Sh$
 $\frac{S}{3}h = V$
 $h = V \times \frac{3}{S}$
 $= \frac{3V}{S}$ (答)

演習 24 (p32)

(1) $b = \frac{a - 1}{4}$
 $4b = a - 1$
 $a = 4b + 1$ (答)

(2) $a = \frac{5b + 3c}{8}$
 $8a = 5b + 3c$
 $3c = 8a - 5b$
 $c = \frac{8a - 5b}{3}$ (答)

(3) $c = \frac{10a - b}{9}$
 $9c = 10a - b$
 $b = 10a - 9c$ (答)

(4) $m = \frac{a + 3b}{4}$
 $4m = a + 3b$
 $3b = 4m - a$
 $b = \frac{4m - a}{3}$ (答)

(5) $b = \frac{3a + 1}{2}$
 $2b = 3a + 1$
 $3a = 2b - 1$
 $a = \frac{2b - 1}{3}$ (答)

(6) $a = \frac{b + 2c}{3}$
 $3a = b + 2c$
 $2c = 3a - b$
 $c = \frac{3a - b}{2}$ (答)

(7) $m = \frac{2a + b + c}{4}$
 $4m = 2a + b + c$
 $c = 4m - 2a - b$ (答)

演習 25 (p33)

$a = 7 \times b + 3 = 7b + 3$
 だから, $7b = a - 3$ $b = \frac{a - 3}{7}$ よって, エ (答)

演習 26

$y = \frac{1}{2}x + 3$
 $2y = x + 6$
 だから, $x - 2y + 6 = 0$ よって, 6 (答)

演習 27 (p35)

(1) $p \div 3 = m$ あまり 2 より, $p = 3m + 2$
 よって, $m = \frac{p - 2}{3}$ (答)

(2) $b = a - \frac{a}{10} \times p = a - \frac{ap}{10} \left[= a \left(1 - \frac{p}{10} \right) \right]$
 よって, $b = a - \frac{ap}{10} \left[= a \left(1 - \frac{p}{10} \right) \right]$ (答)

(3) 全生徒数を x とおくと, 中学 1 年生は $\frac{1}{3}x$ であり,

中学 1 年生が a 人より, $\frac{1}{3}x = a$

だから, 全生徒数は $x = 3a$ ①と表せる。

また, 2 年生が b 人なので①より,

3 年生の人数は, $3a - a - b = 2a - b$ 人。

そこで, 条件より, $b : (2a - b) = 5 : 6$ ゆえ,

$6b = 5(2a - b)$ $6b = 10a - 5b$ $11b = 10a$

$b = \frac{10}{11}a$ よって, $b = \frac{10}{11}a$ (答)

(4) $A = 3m + 2, B = 3n + 2$ より,
 $A + B = (3m + 2) + (3n + 2)$
 $= 3m + 2 + 3n + 2$
 $= 3m + 3n + 4$
 $= 3(m + n) + 3 + 1 \dots (*)$
 $m + n + 1$ は整数ゆえ, $3(m + n + 1)$ は 3 の倍数。
 よって, (*) より, 商は $m + n + 1$, 余りは 1 (答)

(5) B の底面の半径を r とおくと, A の底面の半径は $2r$ となる。また, 高さを h とする。

A の体積は, $(2r)^2 \times \pi \times h = 4\pi r^2 h \dots \textcircled{1}$

B の体積は, $r^2 \times \pi \times h \times \frac{1}{3} = \frac{1}{3} \pi r^2 h \dots \textcircled{2}$

①÷②より,

$4\pi r^2 h \div \frac{1}{3} \pi r^2 h = 4 \times \frac{3}{1} = 12$ よって, 12 倍 (答)

問 6 (p37)

(1) [証明]
 2 つの偶数を $2m, 2n$ とおくと,
 $2m + 2n = 2(m + n)$
 ここで, $(m + n)$ は整数なので, $2(m + n)$ は 2 の倍数である。
 よって, 偶数と偶数の和は, 偶数である。
 おわり

(2) [証明]
 奇数を $2m + 1$, 偶数を $2n$ とおくと,
 $(2m + 1) + 2n = 2m + 1 + 2n$
 $= 2(m + n) + 1$
 ここで, $(m + n)$ は整数なので, $2(m + n)$ は偶数ゆえ,
 $2(m + n) + 1$ は奇数である。
 よって, 奇数と偶数の和は, 奇数である。
 おわり

問 7

(1) [証明]
 2 つの奇数を $2m + 1, 2n - 1$ とおくと,
 $(2m + 1) + (2n - 1) = 2m + 1 + 2n - 1$
 $= 2m + 2n$
 $= 2(m + n)$
 ここで, $(m + n)$ は整数なので, $2(m + n)$ は 2 の倍数である。
 よって, 奇数と奇数の和は, 偶数である。
 おわり

(2) [証明]
 奇数を $2m + 1$, 偶数を $2n$ とおくと,
 $(2m + 1) \times 2n = 4mn + 2n$
 $= 2(2mn + n)$
 ここで, $(2mn + n)$ は整数なので, $2(2mn + n)$ は偶数である。
 よって, 奇数と偶数の積は, 偶数である。
 おわり