

$$\begin{array}{lll}
 \text{10} \quad (1) \frac{(x+y+z)(x+y-z)}{A} & (2) \frac{(2a-b+c)(2a+b+c)}{A} & (3) \frac{(x^2-x+1)(x^2+x+1)}{A} \\
 = (x+y)^2 - z^2 & = (2a+c)^2 - b^2 & = (x^2+1)^2 - x^2 \\
 = x^2 + 2xy + y^2 - z^2 & = 4a^2 + 4ac + c^2 - b^2 & = x^4 + 2x^2 + 1 - x^2 \\
 & & = x^4 + x^2 + 1
 \end{array}$$

$$\begin{array}{lll}
 (4) \frac{(xy-x+2)(xy+x-2)}{A} & (5) \frac{(x+y-4z)(x+y+z)}{A} & (6) \frac{(2x-y-1)(2x-y-3)}{A} \\
 = \left\{ xy - \frac{(x-2)}{A} \right\} \left\{ xy + \frac{(x-2)}{A} \right\} & = (x+y)^2 - 3z(x+y) - 4z^2 & = (2x-y)^2 - 4(2x-y) + 3 \\
 = (xy)^2 - (x-2)^2 & = x^2 + 2xy + y^2 - 3xz - 3yz - 4z^2 & = 4x^2 - 4xy + y^2 - 8x + 4y + 3 \\
 = x^2y^2 - (x^2 - 4x + 4) & & \\
 = x^2y^2 - x^2 + 4x - 4 & &
 \end{array}$$

$$\begin{array}{l}
 (7) \frac{(x+y+3)^2}{A} \\
 = (x+y)^2 + 6(x+y) + 9 \\
 = x^2 + 2xy + y^2 + 6x + 6y + 9
 \end{array}$$

$$\begin{array}{ll}
 (8) \frac{(a+2b-c)^2}{A} & (9) \frac{(x^2+x-2)^2}{A} \\
 = (a+2b)^2 - 2(a+2b)c + c^2 & = (x^2+x)^2 - 4(x^2+x) + 4 \\
 = a^2 + 4ab + 4b^2 - 2c(a+2b) + c^2 & = x^4 + 2x^3 + x^2 - 4x^2 - 4x + 4 \\
 = a^2 + 4ab + 4b^2 - 2ca - 4bc + c^2 & = x^4 + 2x^3 - 3x^2 - 4x + 4 \\
 \quad \quad \quad (-2ac) &
 \end{array}$$

$$\begin{array}{l}
 (10) (x-3)(x-3)(x^2+9) \\
 = (x^2-9)(x^2+9) \\
 = x^4 - 81
 \end{array}$$

$$\begin{array}{l}
 (11) (p-1)(p+1)(p+3)(p-3) \\
 = (p^2-1)(p^2-9) \\
 = p^4 - 10p^2 + 9
 \end{array}$$

$$\begin{array}{l}
 (12) \frac{a(a-1)(a-2)(a-3)}{A} \\
 = (a^2-3a)(a^2-3a+2) \\
 = (a^2-3a)^2 + 2(a^2-3a) \\
 = a^4 - 6a^3 + 9a^2 + 2a^2 - 6a \\
 = a^4 - 6a^3 + 11a^2 - 6a
 \end{array}$$

$$\begin{array}{l}
 (12) \frac{(x+1)(x+3)(x+5)(x+7)}{A} \\
 = (x^2+8x+17)(x^2+8x+15) \\
 = (x^2+8x)^2 + 22(x^2+8x) + 105 \\
 = x^4 + 16x^3 + 64x^2 + 22x^2 + 176x + 105 \\
 = x^4 + 16x^3 + 86x^2 + 176x + 105
 \end{array}$$

P. 4 11

$$(1) 3ab - 6b \\ = 3b(a - 2)$$

$$(2) 4xy^2 - 12x^2y \\ = 4xy(y - 3x)$$

$$(3) abxy - abpq \\ = ab(xy - pq)$$

$$(4) a^2 + 5a \\ = a(a + 5)$$

$$(5) 2a^4 - 6a^2 \\ = 2a^2(a^2 - 3)$$

$$(6) x^2y^2 - 2x^2y + 3xy \\ = xy(xy - 2x + 3)$$

$$(7) 5a^3b^2c - 15a^2bc^2 - 20a^2b^2c^3 \\ = 5a^2bc(ab - 3c - 4bc^2)$$

$$(8) \underline{2a(a+b)} + \underline{6b(a+b)} \\ = 2(a+b)(a+3b)$$

$$(9) a(x-y) + (y-x) \\ = a(\underline{x-y}) - (\underline{x-y}) \\ = (x-y)(a-1)$$

$$(10) 3a(x-y) + 6b(x-y) + 9c(\underline{y-x}) \\ = 3a(x-y) + 6b(x-y) - 9c(\underline{x-y}) \\ = 3(x-y)(a+2b-3c)$$

P. 4 12

$$(1) a^2 + 10a + 25 \\ = (a+5)^2$$

$$(2) x^2 - 16x + 64 \\ = (x-8)^2$$

$$(3) x^2 - 8xy + 16y^2 \\ = (x-4y)^2$$

$$(4) a^2 + 14ab + 49b^2 \\ = (a+7b)^2$$

$$(5) 9x^2 + 6x + 1 \\ = (3x+1)^2$$

$$(6) 64a^2 - 48ab + 9b^2 \\ = (8a-3b)^2$$

$$(7) 3p^3 - 12p^2 + 12p$$

$$= 3p(p^2 - 4p + 4)$$

$$= 3p(p-2)^2$$

$$(8) 4x^3y + 4x^2y^2 + xy^3$$

$$= xy(4x^2 + 4xy + y^2)$$

$$= xy(2x+y)^2$$

P. 5 13

$$(1) x^2 - 4$$

$$= (x+2)(x-2)$$

$$(2) a^2 - 64$$

$$= (a+8)(a-8)$$

$$(3) 9x^2 - 16y^2$$

$$= (3x+4y)(3x-4y)$$

$$(4) 4x^2y^2 - z^2$$

$$= (2xy+z)(2xy-z)$$

$$(5) (x+y)^2 - 4z^2$$

$$= (x+y+2z)(x+y-2z)$$

$$(6) (a+b)^2 - (c-d)^2$$

$$= (a+b+c-d)\{a+b-(c-d)\}$$

$$= (a+b+c-d)(a+b-c+d)$$

$$(7) x^4 - 25x^2$$

$$= x^2(x^2 - 25)$$

$$= x^2(x+5)(x-5)$$

$$(8) 2a^3 - 18ab^2$$

$$= 2a(a^2 - 9b^2)$$

$$= 2a(a+3b)(a-3b)$$

P. 5

$$\boxed{14} \quad (1) a^2 + 6a - 7$$

$$= (a+7)(a-1)$$

$$(2) x^2 - 8x + 12$$

$$= (x-2)(x-6)$$

$$(3) x^2 + 5x - 14$$

$$= (x+7)(x-2)$$

$$(4) a^2 - ab - 30b^2$$

$$= (a-6b)(a+5b)$$

$$(5) x^2 + 3xy - 40y^2$$

$$= (x+8y)(x-5y)$$

$$(6) m^2 + 9mn + 18n^2$$

$$= (m+3n)(m+6n)$$

$$(7) x^3 - 2x^2 - 8x$$

$$= x(x^2 - 2x - 8)$$

$$= x(x-4)(x+2)$$

$$(8) 3x^4y + 36x^3y^2 + 81x^2y^3$$

$$= 3x^2y(x^2 + 12xy + 27y^2)$$

$$= 3x^2y(x+3y)(x+9y)$$

$$\boxed{15} \quad (1) a^2 + 2a + 1 - x^2$$

$$= (a+1)^2 - x^2$$

$$= (a+1+x)(a+1-x)$$

$$(2) 4a^2 - 4ab + b^2 - 9c^2$$

$$= (2a-b)^2 - (3c)^2$$

$$= (2a-b+3c)(2a-b-3c)$$

$$(3) 9x^2 - y^2 + 4y - 4$$

$$= (3x)^2 - (y^2 - 4y + 4)$$

$$= (3x)^2 - (y-2)^2$$

$$= (3x+y-2)(3x-y+2)$$

$$= (3x+y-2)(3x-y+2)$$

$$(4) x^2 + 4x + 4 + 2xy + 4y$$

$$= (x+2)^2 + 2y(x+2)$$

$$= (x+2)(x+2+2y)$$

P. 5

16) $2x^2 - 13x + 6$
 $= (2x-1)(x-6)$

$$\begin{array}{r} 2x-1 \rightarrow -1 \\ 1x-6 \rightarrow -12 \\ \hline -13 \end{array}$$

(2) $12x^2 - 7xy - 12y^2$
 $= (3x-4y)(4x+3y)$

$$\begin{array}{r} 3x-4y \rightarrow -16y \\ 4x+3y \rightarrow 9y \\ \hline -7y \end{array}$$

(3) $2x^2 + 3x + 1$
 $= (2x+1)(x+1)$

$$\begin{array}{r} 2x+1 \rightarrow 1 \\ 1x+1 \rightarrow 2 \\ \hline 3 \end{array}$$

(4) $5a^2 + 7ab + 2b^2$
 $= (5a+2b)(a+b)$

$$\begin{array}{r} 5a+2b \rightarrow 2b \\ 1a+b \rightarrow 5b \\ \hline 7b \end{array}$$

(5) $2a^2 - 5a - 3$
 $= (2a+1)(a-3)$

$$\begin{array}{r} 2a+1 \rightarrow 1 \\ 1a-3 \rightarrow -6 \\ \hline -5 \end{array}$$

(6) $8x^2 - 10xy + 3y^2$
 $= (4x-3y)(2x-y)$

$$\begin{array}{r} 4x-3y \rightarrow -6y \\ 2x-y \rightarrow -4y \\ \hline -10y \end{array}$$

(7) $12a^2 + 7a - 12$
 $= (3a+4)(4a-3)$

$$\begin{array}{r} 3a+4 \rightarrow 16 \\ 4a-3 \rightarrow -9 \\ \hline 7 \end{array}$$

(8) $4x^2 - 41xy + 10y^2$
 $= (4x-y)(x-10y)$

$$\begin{array}{r} 4x-y \rightarrow -y \\ 1x-10y \rightarrow -40y \\ \hline -41y \end{array}$$

P.5 16 9 統計

$$(9) 5a^2 - 3a - 2$$

$$= (5a+2)(a-1)$$

$$\begin{array}{r} 5 \times 2 \rightarrow 2 \\ 1 \times -1 \rightarrow -5 \\ \hline -3 \end{array}$$

$$(10) 3a^2 + 5ab + 2b^2$$

$$= (3a+2b)(a+b)$$

$$\begin{array}{r} 3 \times 2b \rightarrow 2b \\ 1 \times b \rightarrow 3b \\ \hline 5b \end{array}$$

$$(11) 5m^2 - 17m + 6$$

$$= (5m-2)(m-3)$$

$$\begin{array}{r} 5 \times -2 \rightarrow -2 \\ 1 \times -3 \rightarrow -15 \\ \hline -17 \end{array}$$

$$(12) 8s^2 - 14st - 15t^2$$

$$= (2s-5t)(4s+3t)$$

$$\begin{array}{r} 2 \times -5t \rightarrow -20t \\ 4 \times 3t \rightarrow 6t \\ \hline -14t \end{array}$$