

p.17 チェック問題の解答

⑫ (1) $2x^3 + (x^2 - 2x - 1) = 2x^3 + x^2 - 2x - 1$
 (2) $2x^3 - (x^2 - 2x - 1) = 2x^3 - x^2 + 2x + 1$

⑬ (1) $4(x+3) = 4 \times x + 4 \times 3 = 4x + 12$
 (2) $3(4x^2 + x - 2) = 3 \times 4x^2 + 3 \times x - 3 \times 2 = 12x^2 + 3x - 6$
 (3) $-3(-x+7) = -(-3) \times x + (-3) \times 7 = 3x - 21$
 (4) $-2(2x^2 + x - 5) = (-2) \times 2x^2 + (-2) \times x - (-2) \times 5 = -4x^2 - 2x + 10$

⑭ (1) $(4x+3) + (7x-2) = 4x+3+7x-2 = 4x+7x+3-2 = 11x+1$
 (2) $(3x^2+5x+2) + (2x^2-5x+1) = 3x^2+5x+2+2x^2-5x+1 = 3x^2+2x^2+5x-5x+2+1 = 5x^2+3$

p.19 チェック問題の解答

⑮ (1) $(8x-3) - (5x-4) = 8x-3-5x+4 = 8x-5x-3+4 = 3x+1$
 (2) $(3x^2-6x) - (-2x^2-x+5) = 3x^2-6x+2x^2+x-5 = 3x^2+2x^2-6x+x-5 = 5x^2-5x-5$

⑯ (1) $(x^2-4x+7) + 3(x^2+2x-3) = x^2-4x+7+3x^2+6x-9 = x^2+3x^2-4x+6x+7-9 = 4x^2+2x-2$

(2) $(4x^2-x-3) - 3(x^2+2x+2) = 4x^2-x-3-3x^2-6x-6 = 4x^2-3x^2-x-6x-3-6 = x^2-7x-9$

(3) $2(x^2-3x+1) + (5x^2+6x-1) = 2x^2-6x+2+5x^2+6x-1 = 2x^2+5x^2-6x+6x+2-1 = 7x^2+1$

(4) $-2(-x^2-3x) - (x^2-3x+8) = 2x^2+6x-x^2+3x-8 = 2x^2-x^2+6x+3x-8 = x^2+9x-8$

p.21 チェック問題の解答

⑰ (1) $a^3 \times a^5 = a^{3+5} = a^8$
 (2) $x^7 \times x = x^{7+1} = x^8$
 (3) $(a^4)^3 = a^{4 \times 3} = a^{12}$
 (4) $(x^3)^3 = x^{3 \times 3} = x^9$
 (5) $(ax)^3 = a^3 x^3$
 (6) $(ab^3)^2 = a^2 (b^3)^2 = a^2 b^{3 \times 2} = a^2 b^6$

⑱ (1) $x \times 4x^5 = x \times 4 \times x^5 = 4 \times x \times x^5 = 4x^6$
 (2) $3x^2 \times (-5x^3) = 3 \times x^2 \times (-5) \times x^3 = 3 \times (-5) \times x^2 \times x^3 = -15x^5$
 (3) $(3x^2)^3 = 3^3 (x^2)^3 = 9x^4$
 (4) $(-2x)^3 = (-2)^3 x^3 = -8x^3$
 (5) $(3x)^2 \times x^3 = 3^2 x^2 \times x^3 = 9 \times x^2 \times x^3 = 9x^5$
 (6) $(-4x^3)^2 \times x = (-4)^2 (x^3)^2 \times x = 16 \times x^6 \times x = 16x^7$

p.23 チェック問題の解答

⑲ (1) $x(4x+3) = x \times 4x + x \times 3 = 4x^2 + 3x$
 (2) $3x(7x-1) = 3x \times 7x - 3x \times 1 = 21x^2 - 3x$
 (3) $x(2x^2-5x+2) = x \times 2x^2 - x \times 5x + x \times 2 = 2x^3 - 5x^2 + 2x$
 (4) $2x^2(x^2+4x-1) = 2x^2 \times x^2 + 2x^2 \times 4x - 2x^2 \times 1 = 2x^4 + 8x^3 - 2x^2$
 (5) $(3x+5) \times 4x = 3x \times 4x + 5 \times 4x = 12x^2 + 20x$
 (6) $(x^2+3x-8) \times 3x = x^2 \times 3x + 3x \times 3x - 8 \times 3x = 3x^3 + 9x^2 - 24x$

⑳ (1) $(x+3)(x+8) = x(x+8) + 3(x+8) = x \times x + x \times 8 + 3 \times x + 3 \times 8 = x^2 + 8x + 3x + 24 = x^2 + 11x + 24$
 (2) $(x-4)(x+9) = x(x+9) - 4(x+9) = x \times x + x \times 9 - 4 \times x - 4 \times 9 = x^2 + 9x - 4x - 36 = x^2 + 5x - 36$
 (3) $(x-3)(5x-1) = x(5x-1) - 3(5x-1) = x \times 5x - x \times 1 - 3 \times 5x - (-3) \times 1 = 5x^2 - x - 15x + 3 = 5x^2 - 16x + 3$
 (4) $(3x+2)(4x+3) = 3x(4x+3) + 2(4x+3) = 3x \times 4x + 3x \times 3 + 2 \times 4x + 2 \times 3 = 12x^2 + 9x + 8x + 6 = 12x^2 + 17x + 6$

p.25 チェック問題の解答

㉑ (1) $(x+2)(x^2+3x+1) = x(x^2+3x+1) + 2(x^2+3x+1) = x \times x^2 + x \times 3x + x \times 1 + 2 \times x^2 + 2 \times 3x + 2 \times 1 = x^3 + 3x^2 + x + 2x^2 + 6x + 2 = x^3 + 3x^2 + 2x^2 + (x+6x) + 2 = x^3 + 5x^2 + 7x + 2$
 (2) $(x-3)(x^2+4x-2) = x(x^2+4x-2) - 3(x^2+4x-2) = x \times x^2 + x \times 4x - x \times 2 - 3 \times x^2 - 3 \times 4x - (-3) \times 2 = x^3 + 4x^2 - 2x - 3x^2 - 12x + 6 = x^3 + (4x^2 - 3x^2) + (-2x - 12x) + 6 = x^3 + x^2 - 14x + 6$
 (3) $(2x^2+3)(3x-4) = 2x^2(3x-4) + 3(3x-4) = 2x^2 \times 3x - 2x^2 \times 4 + 3 \times 3x - 3 \times 4 = 6x^3 - 8x^2 + 9x - 12$

(4) $(3x-1)(x^2-2x) = 3x(x^2-2x) - 1 \times (x^2-2x) = 3x \times x^2 - 3x \times 2x - 1 \times x^2 - (-1) \times 2x = 3x^3 - 6x^2 - x^2 + 2x = 3x^3 - 7x^2 + 2x$

p.26 練習の解答

練習 22 (1) $(a+1)^2 = a^2 + 2 \times a \times 1 + 1^2 = a^2 + 2a + 1$
 (2) $(x-6)^2 = x^2 - 2 \times x \times 6 + 6^2 = x^2 - 12x + 36$
 (3) $(2a+3)^2 = (2a)^2 + 2 \times (2a) \times 3 + 3^2 = 4a^2 + 12a + 9$
 (4) $(3x-4)^2 = (3x)^2 - 2 \times (3x) \times 4 + 4^2 = 9x^2 - 24x + 16$
 (5) $(2x+y)^2 = (2x)^2 + 2 \times (2x) \times y + y^2 = 4x^2 + 4xy + y^2$
 (6) $(3a-2b)^2 = (3a)^2 - 2 \times (3a) \times (2b) + (2b)^2 = 9a^2 - 12ab + 4b^2$

練習 23 (1) $(x+3)(x-3) = x^2 - 3^2 = x^2 - 9$
 (2) $(x+4)(x-4) = x^2 - 4^2 = x^2 - 16$
 (3) $(3x+1)(3x-1) = (3x)^2 - 1^2 = 9x^2 - 1$
 (4) $(5x+y)(5x-y) = (5x)^2 - y^2 = 25x^2 - y^2$

p.27 チェック問題の解答

㉒ (1) $(a+3)^2 = a^2 + 2 \times a \times 3 + 3^2 = a^2 + 6a + 9$
 (2) $(x-4)^2 = x^2 - 2 \times x \times 4 + 4^2 = x^2 - 8x + 16$
 (3) $(3a+5)^2 = (3a)^2 + 2 \times (3a) \times 5 + 5^2 = 9a^2 + 30a + 25$
 (4) $(2x-7)^2 = (2x)^2 - 2 \times (2x) \times 7 + 7^2 = 4x^2 - 28x + 49$
 (5) $(3x+y)^2 = (3x)^2 + 2 \times (3x) \times y + y^2 = 9x^2 + 6xy + y^2$
 (6) $(2a-3b)^2 = (2a)^2 - 2 \times (2a) \times (3b) + (3b)^2 = 4a^2 - 12ab + 9b^2$

㉓ (1) $(x+5)(x-5) = x^2 - 5^2 = x^2 - 25$
 (2) $(x+6)(x-6) = x^2 - 6^2 = x^2 - 36$
 (3) $(2a+1)(2a-1) = (2a)^2 - 1^2 = 4a^2 - 1$
 (4) $(4x+y)(4x-y) = (4x)^2 - y^2 = 16x^2 - y^2$

p.28 練習の解答

練習 24 (1) $(x+3)(x+4) = x^2 + (3+4)x + 3 \times 4 = x^2 + 7x + 12$
 (2) $(x+4)(x+1) = x^2 + (4+1)x + 4 \times 1 = x^2 + 5x + 4$
 (3) $(x+5)(x-3) = x^2 + (5+(-3))x + 5 \times (-3) = x^2 + 2x - 15$
 (4) $(x-6)(x+2) = x^2 + ((-6)+2)x + (-6) \times 2 = x^2 - 4x - 12$
 (5) $(x-3)(x-6) = x^2 + ((-3)+(-6))x + (-3) \times (-6) = x^2 - 9x + 18$
 (6) $(x-2)(x-4) = x^2 + ((-2)+(-4))x + (-2) \times (-4) = x^2 - 6x + 8$

練習 25 (1) $(3x+1)(x+2)$

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

$$=3x^2 + 7x + 2$$

(2) $(2x+1)(x-3)$

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

$$=2x^2 - 5x - 3$$

(3) $(x-1)(2x-3)$

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

$$=2x^2 - 5x + 3$$

(4) $(2x+3)(3x+4)$

$$=(2 \times 3)x^2 + (2 \times 4 + 3 \times 3)x + 3 \times 4$$

$$=6x^2 + 17x + 12$$

(5) $(5x-2)(3x+1)$

$$=(5 \times 3)x^2 + \{5 \times 1 + (-2) \times 3\}x + (-2) \times 1$$

$$=15x^2 - x - 2$$

(6) $(4x-1)(2x-5)$

$$=(4 \times 2)x^2 + \{4 \times (-5) + (-1) \times 2\}x + (-1) \times (-5)$$

$$=8x^2 - 22x + 5$$

p.29 チェック問題の解答

(24) (1) $(x+2)(x+7) = x^2 + (2+7)x + 2 \times 7$

$$=x^2 + 9x + 14$$

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

(3) $(x+6)(x-5) = x^2 + (6+(-5))x + 6 \times (-5)$

$$=x^2 + x - 30$$

(4) $(x-8)(x+6) = x^2 + \{(-8)+6\}x + (-8) \times 6$

$$=x^2 - 2x - 48$$

(5) $(x-2)(x-9) = x^2 + \{(-2)+(-9)\}x + (-2) \times (-9)$

$$=x^2 - 11x + 18$$

(6) $(x-4)(x-7) = x^2 + \{(-4)+(-7)\}x + (-4) \times (-7)$

$$=x^2 - 11x + 28$$

(25) (1) $(2x+1)(x+4)$

$$=(2 \times 1)x^2 + (2 \times 4 + 1 \times 1)x + 1 \times 4$$

$$=2x^2 + 9x + 4$$

(2) $(3x+2)(x-4)$

$$=(3 \times 1)x^2 + \{3 \times (-4) + 2 \times 1\}x + 2 \times (-4)$$

$$=3x^2 - 10x - 8$$

(3) $(x-2)(2x-5)$

$$=(1 \times 2)x^2 + \{1 \times (-5) + (-2) \times 2\}x + (-2) \times (-5)$$

$$=2x^2 - 9x + 10$$

(4) $(2x+1)(3x+2)$

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

$$=6x^2 + 7x + 2$$

(5) $(5x-1)(3x+4)$

$$=(5 \times 3)x^2 + \{5 \times 4 + (-1) \times 3\}x + (-1) \times 4$$

$$=15x^2 + 17x - 4$$

(6) $(4x-3)(2x-1)$

$$=(4 \times 2)x^2 + \{4 \times (-1) + (-3) \times 2\}x + (-3) \times (-1)$$

$$=8x^2 - 10x + 3$$