

3年 数学 1章 多項式【単項式と多項式の乗除】 答え①

角解説

$$\boxed{2} (1) \quad 3x(2x+5) = 3x \times 2x + 3x \times 5 \\ = 6x^2 + 15x$$

$$(2) \quad -a(4a+2b) = -a \times 4a - a \times 2b \\ = -4a^2 - 2ab$$

$$(3) \quad (5a-2b) \times 2a = 5a \times 2a - 2b \times 2a \\ = 10a^2 - 4ab$$

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

$$(5) \quad 2x(5x+3y-1) = 2x \times 5x + 2x \times 3y - 2x \times 1 \\ = 10x^2 + 6xy - 2x$$

$$(6) \quad (4a-2b-5) \times (-3a) = 4a \times (-3a) - 2b \times (-3a) - 5 \times (-3a) \\ = -12a^2 + 6ab + 15a$$

角解説

$$\boxed{4} (1) \quad (6x^2+4xy) \div 2x = (6x^2+4xy) \times \frac{1}{2x} \\ = \frac{6x^2}{2x} + \frac{4xy}{2x} = 3x + 2y$$

$$(2) \quad (12a^2b^2 - 8a^2b - 4ab^2) \div 4ab = (12a^2b^2 - 8a^2b - 4ab^2) \times \frac{1}{4ab} \\ = \frac{12a^2b^2}{4ab} - \frac{8a^2b}{4ab} - \frac{4ab^2}{4ab} \\ = 3ab - 2a - b$$

角解説

$$\boxed{5} (1) \quad (5x^2-2xy) \div \frac{1}{2}x = (5x^2-2xy) \times \frac{2}{x} \\ = \frac{5x^2 \times 2}{x} - \frac{2xy \times 2}{x} = 10x - 4y$$

$$(2) \quad (10a^2b^2+6a^2b) \div \left(-\frac{2}{3}ab\right) = (10a^2b^2+6a^2b) \times \left(-\frac{3}{2ab}\right) \\ = -\frac{10a^2b^2 \times 3}{2ab} - \frac{6a^2b \times 3}{2ab} = -15ab - 9a$$

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3年 数学 1章 多項式【単項式と多項式の乗除】 答え②

解説

$$\boxed{7} (1) \quad x(x+3) + 2x(x-5) = x^2 + 3x + 2x^2 - 10x \\ = 3x^2 - 7x$$

$$(2) \quad 4a(a+3) - a(2a-1) = 4a^2 + 12a - 2a^2 + a \\ = 2a^2 + 13a$$

$$(3) \quad 4a(5a-2) - 6a(2a+3) = 20a^2 - 8a - 12a^2 - 18a \\ = 8a^2 - 26a$$

$$(4) \quad -5x(x+7y) + 3x(-2x-5y) = -5x^2 - 35xy - 6x^2 - 15xy \\ = -11x^2 - 50xy$$

解説

$$\boxed{8} (1) \quad (8x^2 - 4xy) \div \frac{2}{3}x = (8x^2 - 4xy) \times \frac{3}{2x} \\ = \frac{8x^2 \times 3}{2x} - \frac{4xy \times 3}{2x} \\ = 12x - 6y$$

$$(2) \quad (6a^2b^2 + 15a^2b - 9ab^2) \div \left(-\frac{3}{2}ab\right) = (6a^2b^2 + 15a^2b - 9ab^2) \times \left(-\frac{2}{3ab}\right) \\ = -\frac{6a^2b^2 \times 2}{3ab} - \frac{15a^2b \times 2}{3ab} + \frac{9ab^2 \times 2}{3ab} \\ = -4ab - 10a + 6b$$

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3年 数学 1章 多項式【多項式の乗法】 答え①

解説

- 2
- (1) $(x+8)(y+1) = xy + x + 8y + 8$
 - (2) $(a-2)(b+5) = ab + 5a - 2b - 10$
 - (3) $(a+3)(b-7) = ab - 7a + 3b - 21$
 - (4) $(x-5)(y-4) = xy - 4x - 5y + 20$
 - (5) $(x+a)(y+b) = xy + bx + ay + ab$
 - (6) $(a-b)(c+d) = ac + ad - bc - bd$

解説

- 3
- (1) $(x+4)(x-1) = x^2 - x + 4x - 4$
 $= x^2 + 3x - 4$
 - (2) $(a-6)(a-7) = a^2 - 7a - 6a + 42$
 $= a^2 - 13a + 42$
 - (3) $(2a-5)(5a+2) = 10a^2 + 4a - 25a - 10$
 $= 10a^2 - 21a - 10$
 - (4) $(8x+9)(2x-4) = 16x^2 - 32x + 18x - 36$
 $= 16x^2 - 14x - 36$
 - (5) $(5x+3y)(4x+y) = 20x^2 + 5xy + 12xy + 3y^2$
 $= 20x^2 + 17xy + 3y^2$
 - (6) $(3a-6b)(2a+10b) = 6a^2 + 30ab - 12ab - 60b^2$
 $= 6a^2 + 18ab - 60b^2$

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3年 数学 1章 多項式【多項式の乗法】 答え②

解説

$$\begin{aligned} \boxed{5} (1) \quad (3x+y)(2x+3y-1) &= 3x(2x+3y-1) + y(2x+3y-1) \\ &= 6x^2 + 9xy - 3x + 2xy + 3y^2 - y \\ &= 6x^2 + 11xy - 3x + 3y^2 - y \end{aligned}$$

$$\begin{aligned} (2) \quad (4a-b+3)(3a-6b) &= 12a^2 - 24ab - 3ab + 6b^2 + 9a - 18b \\ &= 12a^2 - 27ab + 6b^2 + 9a - 18b \end{aligned}$$

解説

$$\begin{aligned} \boxed{6} (1) \quad (x-4)(x+2) &= x^2 + 2x - 4x - 8 \\ &= x^2 - 2x - 8 \end{aligned}$$

$$\begin{aligned} (2) \quad (a+3)(a-6) &= a^2 - 6a + 3a - 18 \\ &= a^2 - 3a - 18 \end{aligned}$$

$$\begin{aligned} (3) \quad (2a+3)(5a-1) &= 10a^2 - 2a + 15a - 3 \\ &= 10a^2 + 13a - 3 \end{aligned}$$

$$\begin{aligned} (4) \quad (-2+3x)(7-2x) &= -14 + 4x + 21x - 6x^2 \\ &= -14 + 25x - 6x^2 \end{aligned}$$

$$\begin{aligned} (5) \quad (2a+3b)(4a-b+1) &= 2a(4a-b+1) + 3b(4a-b+1) \\ &= 8a^2 - 2ab + 2a + 12ab - 3b^2 + 3b \\ &= 8a^2 + 10ab + 2a - 3b^2 + 3b \end{aligned}$$

$$\begin{aligned} (6) \quad (-x-5y)(2x+3y-6) &= -x(2x+3y-6) - 5y(2x+3y-6) \\ &= -2x^2 - 3xy + 6x - 10xy - 15y^2 + 30y \\ &= -2x^2 - 13xy + 6x - 15y^2 + 30y \end{aligned}$$

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3年 数学 1章 多項式【乘法公式】 答え①

角解説

- 2 (1) $(x+2)(x+1) = x^2 + (2+1)x + 2 \times 1 = x^2 + 3x + 2$
 (2) $(a+2)(a-7) = a^2 + (2-7)a + 2 \times (-7) = a^2 - 5a - 14$
 (3) $(a-3)(a+6) = a^2 + (-3+6)a + (-3) \times 6 = a^2 + 3a - 18$
 (4) $(x-8)(x-6) = x^2 + (-8-6)x + (-8) \times (-6) = x^2 - 14x + 48$
 (5) $(x-8)(x+7) = x^2 + (-8+7)x + (-8) \times 7 = x^2 - x - 56$
 (6) $(a+9)(a+4) = a^2 + (9+4)a + 9 \times 4 = a^2 + 13a + 36$
 (7) $(a+10)(a-1) = a^2 + (10-1)a + 10 \times (-1) = a^2 + 9a - 10$
 (8) $(x-12)(x+10) = x^2 + (-12+10)x + (-12) \times 10 = x^2 - 2x - 120$
 (9) $(x-3y)(x+2y) = x^2 + (-3y+2y)x + (-3y) \times 2y = x^2 - xy - 6y^2$
 (10) $\left(a + \frac{2}{5}\right)\left(a + \frac{3}{5}\right) = a^2 + \left(\frac{2}{5} + \frac{3}{5}\right)a + \frac{2}{5} \times \frac{3}{5} = a^2 + a + \frac{6}{25}$

角解説

- 4 (1) $(x+2)^2 = x^2 + 2 \times 2 \times x + 2^2 = x^2 + 4x + 4$
 (2) $(a+6)^2 = a^2 + 2 \times 6 \times a + 6^2 = a^2 + 12a + 36$
 (3) $(a+8)^2 = a^2 + 2 \times 8 \times a + 8^2 = a^2 + 16a + 64$
 (4) $(x-1)^2 = x^2 - 2 \times 1 \times x + 1^2 = x^2 - 2x + 1$
 (5) $(x-4)^2 = x^2 - 2 \times 4 \times x + 4^2 = x^2 - 8x + 16$
 (6) $(a-10)^2 = a^2 - 2 \times 10 \times a + 10^2 = a^2 - 20a + 100$

角解説

- 6 (1) $(x+3)(x-3) = x^2 - 3^2 = x^2 - 9$
 (2) $(a-5)(a+5) = a^2 - 5^2 = a^2 - 25$
 (3) $(6+a)(6-a) = 6^2 - a^2 = 36 - a^2$
 (4) $(9-x)(9+x) = 9^2 - x^2 = 81 - x^2$
 (5) $(x+2y)(x-2y) = x^2 - (2y)^2 = x^2 - 4y^2$
 (6) $\left(a + \frac{1}{2}\right)\left(a - \frac{1}{2}\right) = a^2 - \left(\frac{1}{2}\right)^2 = a^2 - \frac{1}{4}$

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3年 数学 1章 多項式【乘法公式】 答え②

角解説

- 7 (1) $(x+2)(x+3) = x^2 + (2+3)x + 2 \times 3 = x^2 + 5x + 6$
 (2) $(a+5)(a-3) = a^2 + (5-3)a + 5 \times (-3) = a^2 + 2a - 15$
 (3) $(a-6)(a+4) = a^2 + (-6+4)a + (-6) \times 4 = a^2 - 2a - 24$
 (4) $(x-3)(x-4) = x^2 + (-3-4)x + (-3) \times (-4) = x^2 - 7x + 12$
 (5) $(x+5y)(x-2y) = x^2 + (5y-2y)x + 5y \times (-2y) = x^2 + 3xy - 10y^2$
 (6) $\left(a - \frac{1}{5}\right)\left(a + \frac{2}{5}\right) = a^2 + \left(-\frac{1}{5} + \frac{2}{5}\right)a + \left(-\frac{1}{5}\right) \times \frac{2}{5} = a^2 + \frac{1}{5}a - \frac{2}{25}$

角解説

- 8 (1) $(x+1)^2 = x^2 + 2 \times 1 \times x + 1^2 = x^2 + 2x + 1$
 (2) $(a-5)^2 = a^2 - 2 \times 5 \times a + 5^2 = a^2 - 10a + 25$
 (3) $(3-a)^2 = 3^2 - 2 \times a \times 3 + a^2 = 9 - 6a + a^2$
 (4) $(-x+4)^2 = (-x)^2 + 2 \times 4 \times (-x) + 4^2 = x^2 - 8x + 16$
 (5) $(x+2y)^2 = x^2 + 2 \times 2y \times x + (2y)^2 = x^2 + 4xy + 4y^2$
 (6) $\left(a - \frac{1}{2}\right)^2 = a^2 - 2 \times \frac{1}{2} \times a + \left(\frac{1}{2}\right)^2 = a^2 - a + \frac{1}{4}$

角解説

- 9 (1) $(x+4)(x-4) = x^2 - 4^2 = x^2 - 16$
 (2) $(a+2)(a-2) = a^2 - 2^2 = a^2 - 4$
 (3) $(a+6)(a-6) = a^2 - 6^2 = a^2 - 36$
 (4) $(x-9)(x+9) = x^2 - 9^2 = x^2 - 81$
 (5) $(2+x)(2-x) = 2^2 - x^2 = 4 - x^2$
 (6) $(5-a)(5+a) = 5^2 - a^2 = 25 - a^2$

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