

中3数学 計算問題

計算しましょう

$$\textcircled{1} a(a+3) = a^2 + 3a \quad \textcircled{16} (x-3)^2 = x^2 - 6x + 9$$

$$\textcircled{2} -4a(2a-5) = -8a^2 + 20a \quad \textcircled{17} \left(x - \frac{2}{5}\right)^2 = x^2 - \frac{4}{5}x + \frac{4}{25}$$

$$\textcircled{3} (-3a+1) \times 6a = -18a^2 + 6a \quad \textcircled{18} (a-b)^2 = a^2 - 2ab + b^2$$

$$\textcircled{4} (10x^2 + 7x) \div x = 10x + 7 \quad \textcircled{19} (x+6)(x-6) = x^2 - 36$$

$$\textcircled{5} (4x^2 - 6xy) \div \frac{2}{3}x = 6x - 9y \quad \textcircled{20} (x+1)(x-1) = x^2 - 1$$

$$\textcircled{6} (2x^2y - 3xy^2 + y^3) \div y = 2x^2 - 3xy + y^2 \quad \textcircled{21} \left(x + \frac{1}{2}\right)\left(x - \frac{1}{2}\right) = x^2 - \frac{1}{4}$$

$$\textcircled{7} (3a^2 + 7ab) \div \left(-\frac{a}{3}\right) = -9a - 21b \quad \textcircled{22} (a+b)(a-b) = a^2 - b^2$$

次の式を展開しましょう

$$\textcircled{9} (x+1)(y+2) = xy + 2x + y + 2 \quad \textcircled{23} (2x+5)^2 = 4x^2 + 20x + 25$$

$$\textcircled{10} (a+1)(b+4) = ab + 4b + b + 4 \quad \textcircled{24} (2x-1)(2x+7) = 4x^2 - 12x - 7$$

$$\textcircled{11} (2a-1)(3a+4) = 6a^2 + 5a - 4 \quad \textcircled{25} (a+b-1)^2 = a^2 + 2ab + b^2 - 2a - 2b + 1$$

$$\textcircled{12} (x-1)(3-x) = -x^2 + 4x - 3 \quad \textcircled{26} (a+b-3)(a+b-5) = a^2 + 2ab + b^2 - 8a - 8b + 15$$

$$\textcircled{13} (-5a+2b)(3a-b) = -15a^2 + 11ab - 2b^2 \quad \textcircled{27} (2a-3b)(a+b+4) = 2a^2 - 5ab + 8a + 3b^2 - 12b$$

$$\textcircled{14} (a-2)(a+3b+1) = a^2 + 3ab - a - 6b - 2 \quad \textcircled{28} (3a-1)(3a+1) - (a-2)^2 = 2a^2 - 5ab + 8a + 3b^2 - 12b$$

$$\textcircled{15} (4x-3y+1)(2x+y) = 8x^2 - 2xy + 2x - 3y^2 + y \quad \textcircled{29} 2a(a+3) - (a+1)^2 = a^2 + 4a - 1$$

$$\textcircled{16} (x+1)^2 = x^2 + 2x + 1 \quad \textcircled{30} (a-4)^2 - (a+2)(a-8) = -2a + 32$$

$$\textcircled{31} (2a+b)^2 - (2a-b)^2 = 8ab$$

次の式を因数分解しましょう

$$\textcircled{1} 4ax + 8ay = 4a(x+2y)$$

$$\textcircled{2} 4x^2 + 7x = x(4x+7)$$

$$\textcircled{3} a^2 - a = a(a-1)$$

$$\textcircled{4} a^2b + ab^2 = ab(a+b)$$

$$\textcircled{5} a^2 + 6ab - 8a = a(a+6b-8)$$

$$\textcircled{6} 9x^2 - 3xy + 6x = 3x(3x-y+2)$$

$$\textcircled{7} x^2 + 5x + 6 = (x+2)(x+3)$$

$$\textcircled{8} x^2 - 7x + 10 = (x-2)(x-5)$$

$$\textcircled{9} x^2 + 12xy + 36y^2 = (x+6y)^2$$

$$\textcircled{10} 9x^2 - 25 = (3x+5)(3x-5)$$

$$\textcircled{11} 36a^2 - 49b^2 = (6a+7b)(6a-7b)$$

$$\textcircled{12} x^2 + 11x - 42 = (x-3)(x+14)$$

$$\textcircled{13} x^2 + 13x - 48 = (x-3)(x+16)$$

$$\textcircled{14} ax^2 - ay^2 = a(x+y)(x-y)$$

$$\textcircled{15} ax^2 + 2ax + a = a(x+1)^2$$

$$\textcircled{16} 4x^2 + 12x + 9 = (2x+3)^2$$

$$\textcircled{17} x^2 - \frac{1}{9}y^2 = \left(x + \frac{1}{3}y\right)\left(x - \frac{1}{3}y\right)$$

$$\textcircled{18} 9x^2 - 6x + 1 = (3x-1)^2$$

$$\textcircled{19} x(x+3) - 18 = (x-3)(x+6)$$

$$\textcircled{20} (x-2)(x-5) + 2 = (x-3)(x-4)$$

$$\textcircled{21} (x+1)(x+5) + 4 = (x+3)^2$$

$$\textcircled{22} (a+b)^2 - 4(a+b) - 5 = (a+b+1)(a+b-5)$$

$$\textcircled{23} (a+b)^2 - 9 = (a+b+3)(a+b-3)$$

$$\textcircled{24} (x-1)(2x-3) + (x-2)^2 - 1 = 3(x-2)(x-1)$$

$$\textcircled{25} xy - 5x + y - 5 = (y-5)(x+1)$$

$$\textcircled{26} ax + 3x - a - 3 = (a+3)(x-1)$$

$$\textcircled{27} 2xy - 3x + 2y - 3 = (x+1)(2y-3)$$

工夫して計算しましょう

$$\textcircled{1} 55^2 - 45^2 = (55+45)(55-45) = 1000$$

$$\textcircled{2} 98 \times 102 = (100-2)(100+2) = 10000 - 4 = 9996$$

$$\textcircled{3} 98^2 = (100-2)^2 = 10000 - 400 + 4 = 9604$$

$$\textcircled{4} 4.8 \times 5.2 = (5-0.2)(5+0.2) = 25 - 0.04 = 24.96$$

$$\textcircled{5} 5.1^2 - 2 \times 5.1 \times 2.1 + 2.1^2 = (5.1-2.1)^2 = 9$$