Mat 4106-1

Factorisation et fractions algébriques

Prétest AA

Corrigé

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#1. $\mathbf{7a^2b\,(2b^2c^4 - 7a^2c^6 + a^4bc - 4a^7b^3)}$

#2. $\mathbf{(2a^4 + 3c)\ (a + 2b - 4c)}$

#3. a. $\mathbf{(x + 3b)\ (x - 14b)}$
b. $\mathbf{(2x - 3y)\ (3x + 2y)}$

#4. $\mathbf{\left(\frac{10x^2b^6}{7} - \frac{3m^2n}{2}\right)\ \left(\frac{10x^2b^6}{7} + \frac{3m^2n}{2}\right)}$

#5. $3x^2\,(\underline{xy - 3x}\ \ \underline{+ 2y - 6})$
$3x^2\ (x\ (y - 3) + 2\ (y - 3))$
$\mathbf{3x^2\ (x + 2)\ (y - 3)}$

#6. $2xy\ (x^2 - 2xy - 3y^2)$
$\mathbf{2xy\ (x - 3y)\ (x + y)}$

#7. $\frac{3\ (32x^2 + 4x - 3)}{xy\ (64x^2 - 9)} = \frac{3\ (8x + 3)\ (4x - 1)}{xy\ (8x - 3)\ (8x + 3)}$

$$\mathbf{\frac{3\ (4x - 1)}{xy\ (8x - 3)}}$$

#8. $\frac{2\ (x - 4)\ (x + 2)}{10\ (bx^2 + 3)} \times \frac{20a\ (bx^2 + 3)}{2\ (x - 4)^2}$

$$\mathbf{\frac{2a\ (x + 2)}{(x - 4)}}$$

#9. $\dfrac{3(a + b)(x - 2y)}{(2y - x)(2y - x)} \times \dfrac{(2y - x)(x + y)}{6(a + b)}$

$$\mathbf{\dfrac{-(x + y)}{2}}$$

#10. $\dfrac{(x - 3)}{(x + 9)} + \dfrac{3(x + 3)}{(x + 9)^2}$

$$\dfrac{(x - 3)(x + 9) + 3x + 9}{(x + 9)^2}$$

$$\dfrac{x^2 + 9x - 3x + 3x + 9 - 27}{(x + 9)^2}$$

$$\mathbf{\dfrac{x^2 + 9x - 18}{(x + 9)^2}}$$

#11. $\dfrac{2(x + 5)}{4x(x + 5)(x - 5)} + \dfrac{(x - 5)}{3(x - 5)(x - 5)} = \dfrac{2x + 3}{6x(x - 5)}$

$$\dfrac{1}{2x(x - 5)} + \dfrac{1}{3(x - 5)} = \dfrac{2x + 3}{6x(x - 5)}$$

$$\mathbf{\dfrac{3 + 2x}{6x(x - 5)} = \dfrac{2x + 3}{6x(x - 5)}}$$

#12. $\dfrac{3b^2 - (2a + b)(a)}{2a(a - b)} = \dfrac{(a - b)(a - b)}{(a - b)(a + b)} - \dfrac{2ab}{(2a + 3b)(a + b)}$

$\dfrac{3b^2 - 2a^2 - ab}{2a(a - b)} = \dfrac{(a - b)}{(a + b)} - \dfrac{2ab}{(2a + 3b)(a + b)}$

$\dfrac{(3b + 2a)(b - a)}{2a(a - b)} = \dfrac{(a - b)(2a + 3b) - 2ab}{(2a + 3b)(a + b)}$

$\dfrac{-(3b + 2a)}{2a} = \dfrac{2a^2 + 3ab - 2ab - 3b^2 - 2ab}{(2a + 3b)(a + b)}$

$= \dfrac{2a^2 - ab - 3b^2}{(2a + 3b)(a + b)}$

$= \dfrac{(2a - 3b)(a + b)}{(2a + 3b)(a + b)}$

$\mathbf{-\dfrac{(3b + 2a)}{2a} \neq \dfrac{(2a - 3b)}{(2a + 3b)}}$

#13.

$\dfrac{2x(x+y)}{(2x+y)(x+y)} + \dfrac{y(x-3)}{(2x+y)(x-3)} = \dfrac{4x(x+y)}{2(x+y)(x-y)} - \dfrac{3(x+y)(x-y)}{3(x-y)(x-y)}$

$\dfrac{2x + y}{2x + y} = \dfrac{2x}{(x - y)} - \dfrac{(x + y)}{(x - y)}$

$1 = \dfrac{2x - x - y}{(x - y)}$

#13. suite.

$$1 = \frac{(x - y)}{(x - y)}$$

1 = 1