

- fractions

$$A = \frac{-4}{5} - \frac{4}{15} + \frac{1}{5} = \frac{5 \times 5}{9 \times 5} - \frac{4 \times 3}{3 \times 15} + \frac{1 \times 9}{5 \times 9} = \frac{25}{45} - \frac{12}{45} + \frac{9}{45}$$

$$= \frac{25 - 12 + 9}{45} = \boxed{\frac{22}{45}}$$

$$B = \frac{-4}{5} - \frac{7}{5} \times \frac{3}{14} = \frac{-4}{5} - \frac{7 \times 3}{5 \times 14} = \frac{-4 \times 4}{5 \times 14} - \frac{7 \times 3}{5 \times 14} = \frac{-56 - 21}{70} = \frac{-77}{70}$$

$$= \frac{-7 \times 11}{7 \times 10} = \boxed{\frac{-11}{10}}$$

$$C = 1 - \frac{3 - 1/7}{3 + 1/7} = 1 - \frac{\frac{3 \times 7}{7} - \frac{1}{7}}{\frac{3 \times 7}{7} + \frac{1}{7}} = 1 - \frac{\frac{21 - 1}{7}}{\frac{22}{7}} = 1 - \frac{20}{22}$$

$$= 1 - \frac{20}{22} = 1 - \frac{10}{11} = \frac{11}{11} - \frac{10}{11} = \frac{11 - 10}{11} = \boxed{\frac{1}{11}}$$

- puissances

$$D = 2 \times 2^{-5} = 2^{(2-5)} = 2^{-3} = \frac{1}{2^3} = \boxed{\left(\frac{1}{2}\right)^3}$$

$$E = \frac{(7^2)^2}{7^{-1}} = \frac{7^{(2 \times 2)}}{7^{-1}} = \frac{7^4}{7^{-1}} = 7^{4 - (-1)} = \boxed{7^5}$$

$$F = \frac{25 \times 2^8}{4 \times 5^4} = \frac{5^2 \times 2^8}{2^2 \times 5^4} = \frac{2^{8-2}}{5^{4-2}} = \frac{2^6}{5^2} = \frac{(2^3)^2}{5^2} = \frac{8^2}{5^2} = \boxed{\left(\frac{8}{5}\right)^2}$$

- radicaux

$$G = \sqrt{28} = \sqrt{7 \times 4} = \sqrt{4 \times 7} = \boxed{2\sqrt{7}}$$

$$H = \sqrt{2^2 + 3^2} = \sqrt{4 + 9} = \sqrt{13} = \boxed{1\sqrt{13}}$$

$$I = 3\sqrt{8} + 4\sqrt{50} - 5\sqrt{18} = 3\sqrt{4 \times 2} + 4\sqrt{25 \times 2} - 5\sqrt{9 \times 2}$$

$$= (3\sqrt{4}\sqrt{2}) + (4\sqrt{25}\sqrt{2}) - (5\sqrt{9}\sqrt{2}) = (3 \times 2\sqrt{2}) + (4 \times 5\sqrt{2}) - (5 \times 3\sqrt{2})$$

$$= 6\sqrt{2} + 20\sqrt{2} - 15\sqrt{2} = \boxed{11\sqrt{2}}$$

a) Développer et réduire

$$J = 3(x-2) - (2x+1)(x-5) = 3x-6 - (2x^2-10x+x-5)$$

$$= 3x-6 - (2x^2-9x-5) = 3x-6-2x^2+9x+5 = \boxed{-2x^2+12x-1}$$

$$K = (3y+1)^2 = (3y)^2 + (2 \cdot 3y \cdot 1) + 1^2 = \boxed{9y^2+6y+1}$$

$$L = \left(\frac{1}{4}x-3\right)^2 = \left(\frac{1}{4}x\right)^2 - 2 \cdot \frac{1}{4}x \cdot 3 + 3^2 = \boxed{\frac{x^2}{16} - \frac{3}{2}x + 9}$$

b) Factoriser

$$M = 6x^2 - x = 6x \cdot x - x = \boxed{x(6x-1)}$$

$$N = (x-1)(x+2) + (x+3)(x+2) = (x+2) [(x-1) + (x+3)] = (x+2)(x-1+x+3)$$

$$= \boxed{(x+2)(2x+2)}$$

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

Inéquation et inequité du 1^{er} degré.

1) Equation

$$5x-3 = 2x+1 \Leftrightarrow 5x-3-2x = 1 \Leftrightarrow 5x-2x = 1+3$$

$$\Leftrightarrow 3x = 4 \Leftrightarrow \boxed{x = \frac{4}{3}}$$

2) Inéquation

$$2x-3 \geq 4 \Leftrightarrow 2x \geq 4+3 \Leftrightarrow 2x \geq 7 \Leftrightarrow x \geq \frac{7}{2}$$

$$\text{Donc } \boxed{S = \left[\frac{7}{2}; +\infty[.}$$

$$4y-1 < 6y-7 \Leftrightarrow 4y-6y < -7+1 \Leftrightarrow -2y < -6$$

$$\Leftrightarrow 2y > 6 \Leftrightarrow y > 3 \quad \text{Donc } \boxed{S =]3; +\infty[}$$