

Ex 1

$$1) |2\pi - 10| = -2\pi + 10 \quad \text{car } 2\pi \approx 6$$

$$2\pi - 10 \approx -4$$

donc négatif

$$|10^{-3}| = 10^{-3} \quad \text{car } 10^{-3} > 0.$$

$$2) \text{ Pour tout } x \in \mathbb{R} \quad |x^2 + 1| = x^2 + 1$$

car $x^2 + 1$ est toujours positif

$$3) n \in \mathbb{N} \text{ impair}$$

$$\text{donc } n = 2k + 1 \text{ avec } k \in \mathbb{N}$$

$$n^2 = (2k + 1)^2 = 4k^2 + 4k + 1$$

$$= 2(2k^2 + 2k) + 1$$

donc n^2 est impair avec $2k^2 + 2k \in \mathbb{N}$

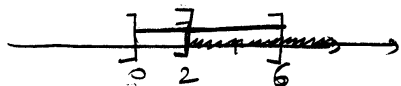
Ex 2

$$1) a) -2 \leq x < 3 \quad \text{donc } x \in [-2; 3[$$

$$b) x < -4 \quad \text{donc } x \in]-\infty; -4[$$

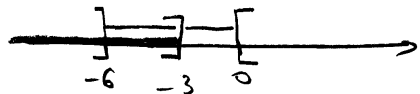
$$c) x \geq \frac{2}{3} \quad \text{donc } x \in \left[\frac{2}{3}; +\infty[$$

$$d) x > 2 \text{ et } 0 < x \leq 6$$



$$\text{donc } x \in]2; 6]$$

$$e) x \leq -3 \text{ ou } -6 < x < 0$$



$$\text{donc } x \in]-\infty; 0[$$

$$2) a) x \in [2; 7] \cup [5; 10[$$

$$\text{donc } x \in [2; 10[$$

$$b) x \in]2; 10[\cap [3; +\infty[$$

$$\text{donc } x \in [3; 10[$$

Ex 3

$$A = (-3 + 4x)(2x - 1)$$

$$= -6x + 3 + 8x^2 - 4x$$

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

$$B = -7x - (-6 + 3x) = -7x + 6 - 3x = -10x + 6$$

$$C = (4x - 3)^2 = 16x^2 - 24x + 9$$

$$D = 3(2 + x)^2 = 3(4 + 4x + x^2) = 12 + 12x + 3x^2$$

Ex 4

$$A = \frac{20}{7} \div \frac{50}{3} = \frac{20}{7} \times \frac{3}{50} = \frac{2 \times 3}{7 \times 5} = \frac{6}{35}$$

$$B = \frac{3 - \frac{1}{2}}{\frac{3}{5} \times \frac{4}{9}} = \frac{\frac{5}{2}}{\frac{4}{5}} = \frac{5}{2} \times \frac{5}{4} = \frac{25}{8}$$

$$C = \frac{\frac{1}{8} - \frac{3}{10}}{\frac{5}{9}} = \frac{\frac{5}{40} - \frac{12}{40}}{\frac{5}{9}} = \frac{-\frac{7}{40}}{\frac{5}{9}} = -\frac{7}{40} \div \frac{5}{9} = -\frac{7}{40} \times \frac{9}{5} = -\frac{63}{200}$$

$$8 = 4 \times 2$$

$$10 = 5 \times 2$$

$$D = 3\left(\frac{1}{4} + \frac{1}{2}\right)^2 = 3\left(\frac{3}{4}\right)^2 = 3 \times \frac{9}{16} = \frac{27}{16}$$

Ex 5

$$1) 7x - 4 = -6$$

$$7x = -6 + 4$$

$$7x = -2$$

$$x = -\frac{2}{7}$$

$$\frac{2x - 1}{3} = 4$$

$$2x - 1 = 12$$

$$2x = 13$$

$$x = \frac{13}{2}$$

$$\frac{x - 1}{5} + 2 = 1$$

$$\frac{x - 1}{5} = 1 - 2$$

$$\frac{x - 1}{5} = -1$$

$$x - 1 = -5$$

$$x = -5 + 1$$

$$x = -4$$