

Ex1

$$1) 3x(x^2 - 2) = 0$$

$$3x = 0 \text{ ou } x^2 - 2 = 0$$

$$\boxed{x = 0}$$

$$x^2 = 2$$

$$\boxed{x = \sqrt{2}} \text{ ou } \boxed{x = -\sqrt{2}}$$

$$S = \{0, -\sqrt{2}, \sqrt{2}\}$$

$$2) \frac{4}{3}x^2 - x = 0$$

$$x(\frac{4}{3}x - 1) = 0$$

$$\boxed{x = 0}$$

$$\text{ou } \frac{4}{3}x - 1 = 0$$

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

$$4x = 3$$

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

$$\boxed{S = \{0, \frac{3}{4}\}}$$

$$3) \frac{2x-3}{3} = \frac{2-x}{5}$$

$$5(2x-3) = 3(2-x)$$

$$10x - 15 = 6 - 3x$$

$$10x + 3x = 15 + 6$$

$$13x = 21$$

$$\boxed{x = \frac{21}{13}}$$

$$4) \frac{5x}{2} - 4 = \frac{1}{3} + 2x$$

$$\frac{5x}{2} - 2x = \frac{1}{3} + 4$$

$$\frac{5x}{2} - \frac{4x}{2} = \frac{13}{3}$$

$$\frac{x}{2} = \frac{13}{3}$$

$$\boxed{x = \frac{26}{3}}$$

$$5) 5(x+1)^2 = 20$$

$$(x+1)^2 = 4$$

$$x+1 = 2 \text{ ou } x+1 = -2$$

$$\boxed{x = 1}$$

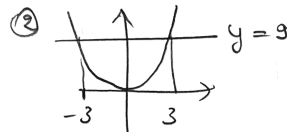
$$\boxed{x = -3}$$

Ex2

$$1) x^2 > 9$$

$$\textcircled{1} x^2 = 9$$

$$x = 3 \text{ ou } x = -3$$



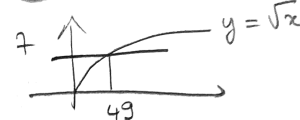
$$\boxed{x \in]-\infty, -3[\cup]3, +\infty[}$$

$$2) \sqrt{x} \leq 7$$

$$\textcircled{1} \sqrt{x} = 7$$

$$x = 49$$

②



$$\boxed{x \in [0, 49]}$$

Ex3

$$5\sqrt{2} = \sqrt{25} \times \sqrt{2} = \sqrt{50}$$

$$47 < 50 \quad \text{car sur } [0, +\infty[$$

$$\sqrt{47} < \sqrt{50} \quad x \mapsto \sqrt{x} \nearrow$$

$$\text{donc } \boxed{\sqrt{47} < 5\sqrt{2}}$$

Ex5

$$1) f(x) = -2(1-x)^2$$

$$f\left(\frac{2}{3}\right) = -2\left(1 - \frac{2}{3}\right)^2 = -2\left(\frac{1}{3}\right)^2 = -2 \times \frac{1}{9} = \boxed{-\frac{2}{9}}$$

$$2) g(x) = \frac{1-x^2}{2+3x}$$

$$a) g(-2) = \frac{1-(-2)^2}{2+3(-2)} = \frac{1-4}{2-6} = \frac{-3}{-4} = \boxed{\frac{3}{4}}$$

$$b) g\left(\frac{1}{5}\right) = \frac{1-\left(\frac{1}{5}\right)^2}{2+3 \times \frac{1}{5}} = \frac{1-\frac{1}{25}}{2+\frac{3}{5}} = \frac{\frac{24}{25}}{\frac{13}{5}}$$

$$= \frac{24}{25} \times \frac{5}{13} = \boxed{\frac{24}{65}}$$

Ex6

$$f(x) = \frac{1}{x} - x^3$$

$$1) f(-x) = \frac{1}{-x} - (-x)^3 = -\frac{1}{x} - (-x^3) = -\frac{1}{x} + x^3$$

$$\boxed{f(-x) = -f(x)} \text{ donc } f \text{ est impaire}$$

2) C_f est symétrique par rapport à l'origine du repère.