

CL60

$$2x^2 - 4x + m = 0$$

$$a=2 \quad b=-4 \quad c=m$$

$$\Delta = b^2 - 4ac = (-4)^2 - 4 \cdot 2 \cdot m = 16 - 8m = 8(2-m)$$

$$\Sigma = -\frac{b}{a} = -\frac{-4}{2} = 2$$

$$\Pi = \frac{c}{a} = \frac{m}{2}$$

a) aucune solution dans  $\mathbb{R} \Rightarrow \Delta < 0$

$$\Delta = 0 \Leftrightarrow m = 2$$

m	2
$\Delta$	+ 0 -

$$\Rightarrow \underline{\underline{2x^2 - 4x + m = 0 \text{ avec } m > 2}}$$

b) solution double  $\Rightarrow \Delta = 0$

$$\Delta = 0 \Leftrightarrow m = 2$$

$$\Rightarrow 2x^2 - 4x + 2 = 0$$

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

$$2(x-1)^2 = 0 \Rightarrow S = \{1\}$$

$$\Rightarrow \underline{\underline{2x^2 - 4x + 2 = 0 \text{ et } S = \{1\}}}$$

c) 2 solutions distinctes  $\Rightarrow \Delta > 0 \Rightarrow m < 2$

$$\Rightarrow \underline{\underline{2x^2 - 4x + m = 0 \text{ avec } m < 2 \quad \Sigma = 2 \quad \Pi = \frac{m}{2}}}$$

d) 1 solution égale à zéro  $\Rightarrow \Pi = 0$  ( $\Pi$  : produit des solutions)

$$\Pi = 0 \Leftrightarrow \frac{m}{2} = 0 \Leftrightarrow m = 0$$

$$\Rightarrow 2x^2 - 4x = 0$$

$$2x(x-2) = 0 \Rightarrow S = \{0; 2\}$$

$$\Rightarrow \underline{\underline{2x^2 - 4x = 0 \text{ et } S = \{0; 2\}}}$$

$$e) \Pi = -1 \Rightarrow \frac{m}{2} = -1 \quad | \cdot 2$$

$$m = -2$$

$$\Rightarrow 2x^2 - 4x + (-2) = 0$$

$$2x^2 - 4x - 2 = 0$$

$$\Delta = 16 - 8m = 16 + 16 = 32$$

$$x_{1,2} = \frac{4 \pm \sqrt{32}}{2 \cdot 2} = \frac{4 \pm 4\sqrt{2}}{4} = 1 \pm \sqrt{2} \Rightarrow S = \{1 - \sqrt{2}; 1 + \sqrt{2}\}$$

$$\Rightarrow \underline{\underline{2x^2 - 4x - 2 = 0 \text{ et } S = \{1 - \sqrt{2}; 1 + \sqrt{2}\}}}$$