

Résoudre les inéquations suivantes :

1)  $x^2 - x - 6 \geq 0$

2)  $8x^2 + 10x - 7 < 0$

3)  $x^2 - x + 1 > 0$

4)  $(x-1)(4x^2 - 12x + 9) \leq 0$

1)  $x^2 - x - 6 \geq 0$

$a = 1 \quad b = -1 \quad c = -6$

$\Delta = (-1)^2 - 4 \times 1 \times (-6) = 1 + 24 = 25$

$x_1 = \frac{-(-1) - 5}{2} = -2 \quad x_2 = \frac{-(-1) + 5}{2} = 3$



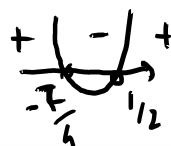
$x$	$-\infty$	$-2$	$3$	$+\infty$	
$x^2 - x - 6$	+	$\emptyset$	-	$\emptyset$	+

$S = ]-\infty; -2] \cup [3; +\infty[$

2)  $8x^2 + 10x - 7 < 0 \quad a = 8 \quad b = 10 \quad c = -7$

$\Delta = 10^2 - 4 \times 8 \times (-7) = 100 + 224 = 324$

$x_1 = \frac{-10 - 18}{16} = -\frac{28}{16} = -\frac{7}{4} \quad x_2 = \frac{-10 + 18}{16} = \frac{8}{16} = \frac{1}{2}$



$x$	$-\infty$	$-7/4$	$1/2$	$+\infty$	
	+	$\emptyset$	-	$\emptyset$	+

$S = ]-\frac{7}{4}; \frac{1}{2}[$

$$3) \quad x^2 - x + 1 > 0 \quad a=1 \quad b=-1 \quad c=1$$

$$\Delta = (-1)^2 - 4 \times 1 \times 1 = 1 - 4 = -3 \quad \text{pas de solutions}$$

$$+ \quad \underbrace{\quad \cup \quad}_{+} \quad +$$

$x$	$-\infty$	$+\infty$
$x^2 - x + 1$		+

$$S = \mathbb{R} = ]-\infty; +\infty[$$

$$3 \text{ bis}) \quad x^2 - x + 1 < 0 \quad \Rightarrow \quad + \quad \underbrace{\quad \cup \quad}_{+} \quad + \quad \Rightarrow S = \emptyset$$

$$4) \quad (x-1)(4x^2 - 12x + 9) \leq 0$$

$$\begin{array}{l} x-1 > 0 \\ x > 1 \end{array}$$

$$4x^2 - 12x + 9 \quad a=4 \quad b=-12 \quad c=9$$

$$\Delta = (-12)^2 - 4 \times 4 \times 9 = 0$$

$$x_1 = -\frac{-12}{8} = \frac{3}{2}$$

$$+ \quad \underbrace{\quad \cup \quad}_{\frac{3}{2}} \quad +$$

$x$	$-\infty$	$1$	$\frac{3}{2}$	$+\infty$
$x-1$	-	$\emptyset$	+	
$4x^2 - 12x + 9$		+	$\emptyset$	+
$P_r$	-	$\emptyset$	+	+

$$S = ]-\infty; 1] \cup \left\{ \frac{3}{2} \right\}$$