

Ex 1

a) $x^2 - 3x - 40 = 0$
 $(x - 8)(x + 5) = 0$ $D = \mathbb{R} - \{-5; 8\}$

b) • $x^2 + 25 = 0$
 aucun zéro

• $x^2 - 25 = 0$
 $(x - 5)(x + 5)$

$D = \mathbb{R} - \{-5; 5\}$

c) conditions: $6 - 18x \geq 0$ $\left| \begin{array}{l} -6 \\ \cdot (-1) \end{array} \right.$
 $-18x \geq -6$
 $18x \leq 6$
 $x \leq \frac{1}{3}$

$D =]-\infty; \frac{1}{3}]$

d) conditions: $2x^2 - 10x - 12 \geq 0$ $\left| \div 2 \right.$
 $x^2 - 5x - 6 \geq 0$
 $(x - 6)(x + 1) \geq 0$

signe:

x	-1	6
$f(x)$	+ 0 -	0 +

$D =]-\infty; -1] \cup [6; +\infty[$

Ex 2

a)

x	-4	5	
f(x)	-	+	-

b)

x	3		
f(x)	+	0	+

c) $f(x) = (x-2)(x+4)(x+6)$

x	-6	-4	2				
f(x)	-	0	+	0	-	0	+

d) $f(x) = (x-2)(x+2)(x-3)(-2x+5)$

x	-2	2	2.5	3					
f(x)	-	0	+	0	-	0	+	0	-

Ex 3

$$a) S =]\frac{20}{11}; +\infty[$$

$$b) S = \{7\}$$

$$c) S = [-\frac{1}{8}; +\infty[$$

$$d) S =]-\infty; -2[\cup [-1; \frac{1}{2}] \cup]2; +\infty[$$

$$e) S =]-\frac{3}{2}; 0[\cup]\frac{1}{4}; 1[$$

$$f) S =]-4; -3[\cup]-2; +\infty[$$

Ex 4

$$x^2 + (1-m)x + 4 = 0$$

$$\text{one sol} \Leftrightarrow \Delta = 0$$

$$\begin{aligned}\Delta &= (1-m)^2 - 4 \cdot 4 = 1 - 2m + m^2 - 16 \\ &= m^2 - 2m - 15 = (m-5)(m+3)\end{aligned}$$

$$m = -3 \quad \text{ou} \quad m = 5$$

EX 5

$$\begin{cases} d(t) = \frac{1}{2} a t^2 + v_0 t + d_0 \\ v(t) = a t + v_0 \end{cases}$$

$$600 = \frac{1}{2} a \cdot 15^2 \quad \Rightarrow \quad a = \frac{1200}{225} = 5,33 \text{ [m/s}^2\text{]}$$

$$v(15) = 5,33 \cdot 15 = 80 \text{ [m/s]}$$