

Ex 3.3.27

a) $f : x \mapsto 3x^2 + 18x + 36$

$$ED(f) = \mathbb{R}$$

zéros : $f(x) = 0 \Leftrightarrow 3x^2 + 18x + 36 = 0$

$$\Leftrightarrow 3(x^2 + 6x + 12) = 0$$

$$\Delta = 36 - 48 = -12 < 0$$

pas de zéro

x	$-\infty$		$+\infty$
$f(x)$		+	

b) $f(x) = -5x^2 + 60x - 180$ $ED(f) = \mathbb{R}$

zéros : $-5x^2 + 60x - 180 = 0$

$$\Leftrightarrow -5(x^2 - 12x + 36) = 0$$

$$\Leftrightarrow -5(x-6)^2 = 0$$

zéro : 6

x		6	
$f(x)$	-	0	-

$$d) f(x) = -4x^2 - 80x - 391$$

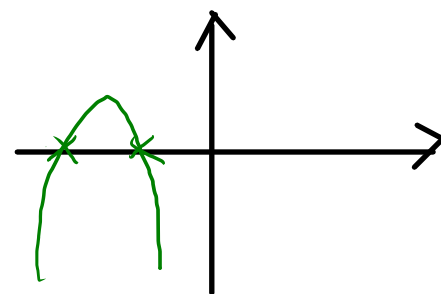
$$ED(f) = \mathbb{R}$$

$$\text{zéros : } -4x^2 - 80x - 391 = 0$$

$$\Delta = 6400 - 4 \cdot 4 \cdot 391 = 144 > 0$$

$$x_{1,2} = \frac{80 \pm 12}{-8} = \begin{cases} -\frac{92}{8} = -\frac{23}{2} \\ -\frac{68}{8} = -\frac{17}{2} \end{cases}$$

x	$-\frac{23}{2}$	$-\frac{17}{2}$	
$f(x)$	$-$	0	$+$
		0	$-$



$$c) f(x) = -8x^2 + 48x - 82$$

$$ED(f) = \mathbb{R}$$

$$\Delta < 0 \Rightarrow \text{pas de zéro.}$$

x	
$f(x)$	$-$