

### 2.3.7

$$P(x) = ax^2 + bx + c \quad \Rightarrow \quad \begin{cases} P(1) = a + b + c = -2 \\ P(-2) = 4a - 2b + c = 3 \\ P(0) = c = -1 \end{cases} \quad \Rightarrow \quad \begin{cases} a + b = -1 \\ 4a - 2b = 4 \end{cases}$$

$$\Rightarrow \begin{cases} a + b = -1 \\ 2a - b = 2 \end{cases} \Rightarrow 3a = 1 \Rightarrow a = \frac{1}{3} \Rightarrow b = -1 - \frac{1}{3} = -\frac{4}{3}$$

$$\Rightarrow P(x) = \frac{1}{3}x^2 - \frac{4}{3}x - 1.$$

### 2.3.11

a) oui ; b) non :  $P(-4) = -105$  ; c) non :  $P(-\frac{1}{2}) = \frac{189}{16}$  ; d) oui ; e) oui ; f) oui ;

$$\Rightarrow P(x) = (x - 1)(x + 1)(x + 5)(x - 3).$$

### 2.3.12

$$\text{a) } 1 \left| \begin{array}{cccc} 2 & 0 & -14 & 12 \\ & 2 & 2 & -12 \\ \hline 2 & 2 & -12 & 0 \end{array} \right.$$

$$\Rightarrow 2x^3 - 14x + 12 = (x - 1)(2x^2 + 2x - 12) = 2(x - 1)(x - 2)(x + 3)$$

$$\Rightarrow 1, 2, -3$$

$$\text{b) } x^4 - 6x^3 + x - 6 = x^3(x - 6) + 1(x - 6) = (x^3 + 1)(x - 6) = (x + 1)(x^2 - x + 1)(x - 6)$$

$$\Rightarrow -1, 6$$