Sea $P(x) = ax^2 + bx + c$ coeficientes $\mathbb{R}$

1) $P(1) = 1$

$P(2) = 2$

$\begin{cases} a(1)^2 + b1 + c = 1 \\ b(2)^2 + b2 + c = 2 \end{cases}$

ó

$\begin{cases} a1 + b1 + c = 1 \\ b4 + b2 + c = 2 \end{cases}$

b) $\begin{bmatrix} 1 & 1 & 1 & | & 1 \\ 4 & 2 & 1 & | & 2 \end{bmatrix}$

$\downarrow F_2 - 4F_1$

$\begin{bmatrix} 1 & 1 & 1 & | & 1 \\ 0 & -2 & -3 & | & -2 \end{bmatrix}$

$\downarrow F_2 \cdot -\frac{1}{2}$

$\begin{bmatrix} 1 & 1 & 1 & | & 1 \\ 0 & 1 & 3/2 & | & 1 \end{bmatrix}$

$\downarrow F_1 - F_2$

$\begin{bmatrix} 1 & 0 & -1/2 & | & 0 \\ 0 & 1 & 3/2 & | & 1 \end{bmatrix}$ Merf $\therefore \boxed{\begin{array}{l} a = \frac{1}{2}c \\ b = -3/2\,c + 1 \end{array}}$

c) Con lo visto recien concluimos en

$$S = \left\{ \left(\tfrac{1}{2}c, \tfrac{-3}{2}c+1, c \right) : c \in \mathbb{R} \right\}$$

$$= \left\{ c\left(\tfrac{1}{2}, \tfrac{-3}{2}, 1 \right) + (0, 1, 0) \right.$$

$$\boxed{S = \left\{ c\left(\tfrac{1}{2}, \tfrac{-3}{2}, 1 \right) + (0, 1, 0) : c \in \mathbb{R} \right\}}$$