

Escribe las siguientes expresiones como una potencia de un binomio.

a) $25x^2 - 10x + 1$

d) $16x^2 + 24x + 9$

b) $4x^2 - 20x + 25$

e) $36x^2 + 12x + 1$

c) $\frac{1}{4}x^2 - 3x + 9$

f) $\frac{1}{16}x^2 + \frac{1}{3}x + \frac{4}{9}$

$$\begin{aligned} \text{a) } 25x^2 - 10x + 1 &= \underbrace{(5x - 1)^2} \\ &\quad \downarrow \qquad \qquad \downarrow \\ &\quad (5x)^2 \qquad 1^2 \\ &\quad -2 \cdot 5x \cdot 1 \end{aligned}$$

$$\begin{aligned} \text{b) } 4x^2 - 20x + 25 &= \underbrace{(2x - 5)^2} \\ &\quad \underbrace{(2x)^2 \qquad 5^2} \\ &\quad -2 \cdot 2x \cdot 5 \end{aligned}$$

$$\begin{aligned} \text{c) } \frac{1}{4}x^2 - 3x + 9 &= \underbrace{\left(\frac{1}{2}x - 3\right)^2} \\ &\quad \underbrace{\left(\frac{1}{2}x\right)^2 \qquad 3^2} \\ &\quad -2 \cdot \frac{1}{2}x \cdot 3 \end{aligned}$$

$$\begin{aligned} \text{d) } 16x^2 + 24x + 9 &= \underbrace{(4x + 3)^2} \\ &\quad \underbrace{(4x)^2 \qquad 2 \cdot 4x \cdot 3 \qquad 3^2} \end{aligned}$$

$$\begin{aligned} \text{e) } 36x^2 + 12x + 1 &= \underbrace{(6x + 1)^2} \\ &\quad \underbrace{(6x)^2 \qquad 2 \cdot 6x \cdot 1 \qquad 1^2} \end{aligned}$$

$$\begin{aligned} \text{f) } \frac{1}{16}x^2 + \frac{1}{3}x + \frac{4}{9} &= \underbrace{\left(\frac{1}{4}x + \frac{2}{3}\right)^2} \\ &\quad \underbrace{\left(\frac{1}{4}x\right)^2 \qquad 2 \cdot \frac{1}{4}x \cdot \frac{2}{3} \qquad \left(\frac{2}{3}\right)^2} \end{aligned}$$

Expresa como producto de dos binomios.

a) $x^2 - 1$

c) $16x^2 - 25$

e) $25x^2 - 1$

b) $4x^2 - 9$

d) $\frac{1}{4}x^2 - 9$

f) $\frac{4}{9}x^6 - \frac{25}{16}$

$$a) \begin{array}{c} x^2 - 1 \\ \downarrow \quad \downarrow \\ (x)^2 \quad 1^2 \end{array} = \underline{(x+1) \cdot (x-1)}$$

$$b) \begin{array}{c} 4x^2 - 9 \\ (2x)^2 - 3^2 \end{array} = \underline{(2x+3) \cdot (2x-3)}$$

$$c) 16x^2 - 25 = (4x)^2 - 5^2 = \underline{(4x+5)(4x-5)}$$

$$d) \frac{1}{4}x^2 - 9 = \left(\frac{1}{2}x\right)^2 - 3^2 = \underline{\left(\frac{1}{2}x+3\right) \cdot \left(\frac{1}{2}x-3\right)}$$

$$e) 25x^2 - 1 = (5x)^2 - 1^2 = \underline{(5x+1)(5x-1)}$$

$$f) \frac{4}{9}x^6 - \frac{25}{16} = \left(\frac{2}{3}x^3\right)^2 - \left(\frac{5}{4}\right)^2 = \underline{\left(\frac{2}{3}x^3 + \frac{5}{4}\right) \cdot \left(\frac{2}{3}x^3 - \frac{5}{4}\right)}$$