

Luis Daniel Ortega López

PROBLEMARIO

1 $(3a^3 + 5a^2 - 4) \div (3a)$

$$\frac{3a^3}{3a} + \frac{5a^2}{3a} - \frac{4}{3a}$$

$$R = a^2 + \frac{5}{3}a - \frac{4}{3a}$$

2 $(\frac{2}{3}a^2b^2 - \frac{1}{4}a^2b^4 + \frac{5}{6}ab^4 - \frac{2}{5}b^5) \div (-\frac{1}{2}ab^2)$

$$\frac{\frac{2}{3}a^2b^2}{-\frac{1}{2}ab^2} - \frac{\frac{1}{4}a^2b^4}{-\frac{1}{2}ab^2} + \frac{\frac{5}{6}ab^4}{-\frac{1}{2}ab^2} - \frac{\frac{2}{5}b^5}{-\frac{1}{2}ab^2}$$

$$= -\frac{3}{4}ab^0 + \frac{2}{4}ab^2 - \frac{10}{6}a^0b^2 + \frac{4}{5}ab^3$$

$$R = -\frac{3}{4}a + \frac{1}{2}ab^2 - \frac{5}{3}b^2 + \frac{4}{5}ab^3$$

3 $(x^4 - 2x^3 - 11x^2 + 30x - 20) \div (x^2 + 3x - 2)$

$$\begin{array}{r} x^2 - 5x + 6 \\ x^2 + 3x - 2 \overline{) x^4 - 2x^3 - 11x^2 + 30x - 20} \\ \underline{-x^4 - 3x^3 + 2x^2} \\ -5x^3 - 9x^2 + 30x - 20 \\ \underline{-5x^3 + 15x^2 - 10x - 20} \\ 6x^2 + 20x - 20 \\ \underline{-6x^2 - 18x + 12} \\ 2x - 8 \end{array}$$

$$R = x^2 - 5x + 6 + \frac{2x - 8}{x^2 + 3x - 2}$$

$$4 \ (x^6 + 5x^4 + 3x^2 - 2x) \div (x^2 - x + 3)$$

$$\begin{array}{r} x^4 + x^3 + 3x^2 - 6 \\ x^2 - x + 3 \overline{) x^6 + 0x^5 + 5x^4 + 0x^3 + 3x^2 - 2x + 0} \\ \underline{-x^6 + x^5 - 3x^4} \\ x^5 + 2x^4 + 0x^3 \\ \underline{-x^5 + x^4 - 3x^3} \\ 3x^4 - 3x^3 + 3x^2 \\ \underline{-3x^4 + 3x^3 - 9x^2} \\ -6x^2 - 2x + 0 \\ \underline{6x^2 - 6x + 18} \\ -8x + 18 \end{array}$$

$$R = x^4 + x^3 + 3x^2 - 6 + \left(\frac{-8x + 18}{x^2 - x + 3} \right)$$

$$5 \ (x^4 - 2x^3 - 11x^2 + 30x - 20) \div (x^2 + 3x - 2)$$

El problema es igual al problema 3

$$R = x^2 - 5x + 6 \left(\frac{2x - 8}{x^2 + 3x - 2} \right)$$

$$6 \ (x^6 + 5x^4 + 3x^2 - 2x) \div (x^2 - x + 3)$$

El problema es igual al problema 4

$$R = x^4 + x^3 + 3x^2 - 6 + \left(\frac{-8x + 18}{x^2 - x + 3} \right)$$

$$7 \ (2x^4 - 2x^3 + 3x^2 + 5x + 10) \div (x+2)$$

$$\begin{array}{r} 2x^3 - 6x^2 + 15x + 35 \\ x+2 \overline{) 2x^4 - 2x^3 + 3x^2 + 5x + 10} \\ \underline{-2x^4 - 4x^3} \\ -6x^3 + 3x^2 \\ \underline{6x^3 + 12x^2} \\ 15x^2 + 5x \\ \underline{-15x^2 + 30x + 10} \\ 35x + 10 \\ \underline{-35x - 70} \\ -60 \end{array}$$

$$R = 2x^3 - 6x^2 + 15x + 35 + \left(\frac{-60}{x+2} \right)$$

$$8 \ (x^{10} - 1024) \div (x+2)$$

$$\begin{array}{r} x^9 + 2x^8 - 4x^7 + 8x^6 - 16x^5 + 32x^4 - 64x^3 + 128x^2 - 256x + 512 \\ x+2 \overline{) x^{10} + 0x^9 + 0x^8 + 0x^7 + 0x^6 + 0x^5 + 0x^4 + 0x^3 + 0x^2 + 0x + 1024} \\ \underline{-x^{10} - 2x^9} \\ 2x^9 + 0x^8 \\ \underline{-2x^9 - 4x^8} \\ 4x^8 + 8x^7 + 0x^6 \\ \underline{-4x^8 - 8x^7 - 16x^6} \\ 16x^6 + 0x^5 \\ \underline{-16x^6 - 32x^5} \\ 32x^5 + 0x^4 \\ \underline{-32x^5 - 64x^4} \\ 64x^4 + 128x^3 + 0x^2 \\ \underline{-64x^4 - 128x^3 - 256x^2} \\ 128x^2 + 0x \\ \underline{-128x^2 - 256x} \\ 256x + 1024 \\ \underline{-256x - 512} \\ 512 \end{array}$$

$$R = x^9 + 2x^8 - 4x^7 + 8x^6 - 16x^5 + 32x^4 - 64x^3 + 128x^2 - 256x + 512$$

$$9 \ (x^3 - 5x - 1) \div (x - 3)$$

$$\begin{array}{r} x^2 + 3x + 1 \\ x-3 \overline{) x^3 + 0x^2 - 5x - 1} \\ \underline{x^3 + 3x^2} \\ 3x^2 - 5x \\ \underline{3x^2 + 6x} \\ -x - 1 \\ \underline{-x + 3} \\ 4 \end{array}$$

$$R = x^2 + 3x + 1 + \left(\frac{4}{x-3} \right)$$

$$10 \ (R^4 S^3 T^2 U)^5 = R^{20} S^{15} T^{10} U^5$$

$$11 \ (-a^3 b^4 c^2 d^5)^6 = -a^{18} b^{24} c^{12} d^{30}$$

$$12 \ (-3x^6 y^3 z^2) (-3x^6 y^3 z^2) R = 9x^{12} y^6 z^4$$

$$13 \ \left(\frac{2}{5} a^2 b - \frac{4}{3} ab - 4 \right) \left(\frac{3}{2} ab^2 \right)$$

$$R = \frac{3}{5} a^3 b^3 - 2a^2 b^3 - 6ab^2$$

$$14 \ (3x^3 + 2y^2) (3x^3 + 2y^3)^2 = 9x^6 + 6x^3 y^3 + 6x^3 y^3 + 4y^5$$

$$R = 9x^6 + 12x^3 y^3 + 4y^5$$

$$15 \ \left(\frac{2}{6} a^3 + \frac{1}{3} b^2 \right) \left(\frac{2}{6} a^3 + \frac{1}{3} b^2 \right) \frac{4}{36} a^6 + \frac{2}{18} a^3 b^2$$

$$R = \frac{1}{9} a^6 + \frac{2}{9} a^3 b^2 + \frac{1}{3} b^4$$

$$\frac{2}{18} a^3 b^2 + \frac{1}{3} b^4$$