



Nombre de alumnos: Angel Esteban Pinto Arizmendi

Nombre del profesor: Juan Jose Ojeda

Nombre del trabajo: Problematario

Materia: Algebra

PASIÓN POR EDUCAR

Grado: 1 Semestre de enfermería

Grupo: Único

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

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

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

$$\begin{array}{r} \frac{2}{6} a^2 b^2 \quad -\frac{1}{8} a^2 b^4 \quad \frac{5}{12} a b^4 \quad -\frac{2}{3} b^5 \\ \hline \frac{1}{2} a b^2 \quad \frac{1}{2} a b^2 \quad \frac{1}{2} a b^2 \quad \frac{1}{2} a b^2 \end{array}$$

$$\frac{2}{3} \div \frac{1}{2} = \frac{4}{3} a \quad \frac{1}{8} \div \frac{1}{2} = \frac{2}{8} a b^2 \quad \frac{5}{12} \div \frac{1}{2} = \frac{10}{12} b^2 \quad \frac{2}{3} \div \frac{1}{2} = \frac{4}{3} a b^3$$

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

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

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

$$\begin{array}{r}
 x^4 - x^3 + 8x^2 - 11x \\
 x^2 - x + 3 \overline{) x^6 - 5x^4 + 3x^2 - 2x} \\
 \underline{x^6 - x^5 + 3x^4} \\
 x^5 - 8x^4 + \\
 \underline{x^5 + x^4 - 3x^3} \\
 -8x^4 + 3x^3 + 3x^2 \\
 \underline{8x^4 - 8x^3 - 24x^2} \\
 11x^3 - 21x^2 - 2x \\
 \underline{11x^3 + 11x^2 + 33x} \\
 -10x^2 - 31x
 \end{array}$$

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

$$\begin{array}{r}
 2x^3 + 2x^2 - 1x + 3 \\
 x + 2 \overline{) 2x^4 - 2x^3 + 3x^2 + 5x + 10} \\
 \underline{2x^4 + 4x^3} \\
 -2x^3 + 3x^2 \\
 \underline{-2x^3 - 4x^2} \\
 -1x^2 + 5x \\
 \underline{+ 1x^2 - 2x} \\
 3x + 10 \\
 \underline{3x + 6} \\
 4
 \end{array}$$

$$3 = (x^{10} - 1024) \div (x+2)$$

$$\begin{array}{r}
 x^{10} - 2x^9 + 4x^8 - 8x^7 + 16x^6 - 32x^5 + 64x^4 - 128x^3 + 256x^2 - 512x + 1024 \\
 x+2 \overline{) x^{10} - x^9 + x^8 + x^7 + x^6 + x^5 + x^4 + x^3 + x^2 + x - 1024} \\
 \underline{x^{10} + 2x^9} \\
 -2x^9 + x^8 + x^7 + x^6 + x^5 + x^4 + x^3 + x^2 + x - 1024 \\
 \underline{2x^9 + x^8} \\
 -x^8 + x^7 + x^6 + x^5 + x^4 + x^3 + x^2 + x - 1024 \\
 \underline{-x^8 + x^7} \\
 x^6 + x^5 + x^4 + x^3 + x^2 + x - 1024 \\
 \underline{x^6 + 2x^5} \\
 -x^5 + x^4 + x^3 + x^2 + x - 1024 \\
 \underline{-x^5 + 2x^4} \\
 x^4 + x^3 + x^2 + x - 1024 \\
 \underline{x^4 + 2x^3} \\
 -x^3 + x^2 + x - 1024 \\
 \underline{-x^3 + 2x^2} \\
 x^2 + x - 1024 \\
 \underline{x^2 + 2x} \\
 -x - 1024 \\
 \underline{-x - 2} \\
 -1022
 \end{array}$$

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

$$\begin{array}{r} x^2 - 3x + 4 \\ x-3 \overline{) x^3 - 5x - 1} \\ \underline{x^3 - 3x^2} \\ 3x^2 - 5x \\ \underline{3x^2 + 9x} \\ -4x - 1 \\ \underline{4x + 12} \\ -11 \end{array}$$

$$10. (R^4 S^3 T^2 U)^5$$

$$(R^4)^5 (S^3)^5 (T^2)^5 (U)^5$$

$$R^{20} S^{15} T^{10} U^5$$

$$11. (-A^5 b^4 c^2 d^5)^6$$

$$(A^5)^6 (b^4)^6 (c^2)^6 (d^5)^6$$

$$= A^{30} b^{24} c^{12} d^{30}$$

$$12. (-3x^6 y^3 z^2)(-3x^6 y^3 z^2)$$

$$9x^{12} - 3x^6 y^3 - 3x^6 z^2$$

$$+ 3x^6 y^3$$

$$+ y^6 + y^3 z^2$$

$$3x^6 z^2$$

$$+ y^3 z^2 + z^4$$

$$9x^{12} - 3x^6 y^3 - 6x^6 z^2 + y^6 + 2y^3 z^2 + z^4$$

$$13: \left(\frac{2}{5} a^2 b - \frac{1}{3} ab - 4\right) \left(\frac{3}{2} ab^2\right)$$

$$\frac{6}{10} a^3 b^2 - \frac{12}{6} ab^3 - \frac{12}{2} ab^2$$

$$14: (3x^3 + 2y^2)(3x^3 + 2y^3)^2$$

$$9x^6 + 6x^3y^2$$

$$6x^3y^2 + 4y^5$$

$$(9x^6 + 12x^3y^2 + 4y^5)(9x^6 + 12x^3y^2 + 4y^5)$$

$$81x^{12} + 108x^9y^2 + 36x^6y^5$$

$$108x^9y^2 + 144x^6y^4 + 48x^3y^7$$

$$36x^6y^5 + 48x^3y^7 + 16y^{10}$$

$$81x^{12} + 216x^9y^2 + 72x^6y^5 + 144x^6y^4 + 96x^3y^7 + 16y^{10}$$

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

$$\frac{4}{36} a^6 + \frac{2}{18} a^3 b^2$$

$$\frac{2}{18} a^3 b^2 + \frac{1}{9} b^4$$

$$\frac{4}{36} a^6 + \frac{4}{18} a^3 b^2 + \frac{1}{9} b^4$$