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**Nombre del trabajo: Problemario**

**Materia: Algebra**

**PASIÓN POR EDUCAR**

**Grado: 1 Semestre de enfermería**

**Grupo: Único**

①  $(3a^3 + 5a^2 - 4) \div (3a)$

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

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

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

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

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

$$\begin{array}{r} x^2 - 5x + 6 \\ \hline x^2 + 3x - 2 \overline{) x^4 - 2x^3 - 11x^2 + 30x - 20} \\ \underline{-x^2 - 3x^3 + 2x^2} \phantom{-20} \\ \phantom{x^4} 5x^3 - 9x^2 + 30x \phantom{-20} \\ \phantom{x^4} \underline{-5x^3 + 15x^2 - 10x} \phantom{-20} \\ \phantom{x^4} \phantom{5x^3} -6x^2 - 20x - 20 \\ \phantom{x^4} \phantom{5x^3} \underline{6x^2 - 18x + 12} \\ \phantom{x^4} \phantom{5x^3} \phantom{6x^2} 38x - 8 \end{array}$$

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

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

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

$$\begin{array}{r}
 2x^3 - 2x^2 + 4x - 3 \\
 \hline
 x + 2 \overline{) 2x^4 - 2x^3 + 5x + 10} \\
 \underline{- 2x^4 - 4x^3} \phantom{+ 5x + 10} \\
 2x^3 + 5x \phantom{+ 10} \\
 \underline{- 2x^3 - 4x^2} \phantom{+ 5x + 10} \\
 9x^2 + 5x \phantom{+ 10} \\
 \underline{- 9x^2 - 18x} \phantom{+ 10} \\
 -3x + 10 \phantom{+ 10} \\
 \underline{3x + 6} \phantom{+ 10} \\
 4 //
 \end{array}$$

⑥  $(x^{10})$

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

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

$$\begin{array}{r} x^{10} + 0x^9 + 0x^8 + 0x^7 + 0x^6 + 0x^5 + 0x^4 + 0x^3 + 0x^2 + 0x - 1024 \\ - x^9 - 2x^8 \end{array}$$

$$- 2x^9 + 0x^8$$

$$2x^9 + 4x^8$$

$$4x^8 + 0x^7$$

$$- 4x^8 + 8x^7$$

$$- 8x^7 + 0x^6$$

$$8x^7 + 16x^6$$

$$16x^6 + 0x^5$$

$$- 16x^6 - 32x^5$$

$$- 32x^5 + 0x^4$$

$$- 32x^5 - 64x^4$$

$$- 64x^4 + 0x^3$$

$$64x^4 - 128x^3$$

$$- 128x^3 + 0x^2$$

$$128x^3 + 256x^2$$

$$+ 256x^2 + 0x$$

$$256x^2 - 512x$$

$$- 512x - 1024$$

$$512 - 1024$$

⑨  $(x^3 - 5x - 1) \div (x - 3)$

$$\begin{array}{r}
 x^2 - 3x - 14 \\
 x - 3 \overline{) x^3 - \phantom{3x^2} - 5x - 1} \\
 \underline{x^2 + 3x^2} \phantom{- 5x - 1} \\
 3x^2 - 5x \phantom{- 1} \\
 \underline{6x^2 + 9x} \phantom{- 1} \\
 19x - 1 \\
 \underline{19x + 42} \\
 43
 \end{array}$$

⑩  $(R^4 S^3 T^2 U)^5$

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

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

$$\textcircled{ii} (A^5 b^4 c^2 o^5)^6$$

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

$$A^{15625} + b^{531,441} + c^{64} + o^{15625}$$

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

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

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

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

$$13 \left( \frac{2}{5}a^2b - \frac{9}{3}ab - 9 \right) \left( \frac{3}{2}ab^2 \right)$$

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

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

$$9x^6 + 6x^3y^2 + 6x^3y^2 + 4y^4$$

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

$$81x^{12} + 108x^9y^2 + 36x^6y^4$$

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

$$36x^6y^4 + 48x^3y^6 + 16y^8$$

$$81x^{12} + 216x^9y^2 + 216x^6y^4 + 96x^3y^6 + 16y^8$$

$$19 \left( \frac{2}{6} a^3 + \frac{1}{3} b^2 \right) \left( \frac{2}{6} a^3 + \frac{1}{3} b^2 \right)$$

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

$$\frac{2}{18} + \frac{2}{18} =$$

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

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