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$$\begin{array}{r} 16) \quad x^4 \quad \cdot \quad -x + 1 \\ + \quad \quad \quad x^2 \quad \quad + 1 \\ \hline \end{array}$$

$$(R_x) + (S_x) = x^4 + x^2 - x + 2$$

$$\begin{array}{r} x^4 \quad \cdot \quad -x + 1 \\ - \quad \quad \quad x^2 \quad \quad + 1 \\ \hline \end{array}$$

$$(R_x) - (S_x) = x^4 - x^2 - x$$

$$\begin{array}{r} x^4 - x + 1 \\ \times \quad x^2 + 1 \\ \hline \end{array}$$

$$\begin{array}{r} x^4 \quad \cdot \quad -x + 1 \\ x^6 \quad -x^3 + x^2 \\ \hline \end{array}$$

$$(R_x \cdot S_x) = x^6 + x^4 - x^3 + x^2 - x + 1$$

16b)

$$\begin{array}{r} x+1 \\ + \quad x^2+x-1 \\ \hline \end{array}$$

$$(R_x) + (S_x) = x^2 + 2x \quad 0 = x^2 + 2x$$

$$\begin{array}{r} x+1 \\ - \quad x^2+x-1 \\ \hline \end{array}$$

$$(R_x) - (S_x) = -x^2 + 2 \quad = \underline{\underline{-x^2 + 2}}$$

$$\begin{array}{r} x+1 \\ \times \quad x^2+x-1 \\ \hline \end{array}$$

$$\begin{array}{r} + x^2 + x \\ + x^3 + x^2 \\ \hline \end{array}$$

$$(R_x) \cdot (S_x) = x^3 + 2x^2 - 1 = \underline{\underline{x^3 + 2x^2 - 1}}$$

$$17) \begin{cases} A(x) = 3x^4 - 5x^3 + x^2 - 7 \end{cases}$$

$$\begin{cases} B(x) = -3x^4 + x^3 - 2x + 1 \end{cases}$$

$$- A(x) = -3x^4 + 5x^3 - x^2 + 7$$

$$+ B(x) = -3x^4 + x^3 - 2x + 1$$

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$$-6x^4 + 6x^3 - x^2 - 2x + 8$$

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$$- A(x) = -3x^4 + 5x^3 - x^2 + 7$$

$$- B(x) = +3x^4 - x^3 + 2x - 1$$

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$$- A(x) - B(x) = \quad / \quad \underline{\underline{4x^3 - x^2 + 2x + 6}}$$

18) Calcular el valor de "a" para que

$$(3x^3 + 2x^2 - 4) \cdot a = 6x^5 + 4x^4 - 8x^2$$

$$\boxed{a = 2x^2} \quad \downarrow$$

$$(3x^3 + 2x^2 - 4) \cdot 2x^2 = 6x^5 + 4x^4 - 8x^2$$

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19a)

$$\frac{x^3 - 3x^2 + 2x}{x} = \frac{x^3}{x} - \frac{3x^2}{x} + \frac{2x}{x} = \underline{\underline{x^2 - 3x + 2}}$$

19b)

$$\begin{array}{r} 2x^3 - 3x^2 - 5x - 5 \\ -2x^3 + 4x^2 \\ \hline x^2 - 5x - 5 \\ -x^2 + 2x \\ \hline -3x - 5 \\ +3x - 6 \\ \hline -11 \end{array} \quad \begin{array}{r} | x - 2 \\ 2x^2 + x - 3 \\ \hline \end{array}$$

19c)

$$\begin{array}{r} 2x^3 - 3x^2 + 4x - 3 \\ -2x^3 - 2x^2 + 2x \\ \hline -5x^2 + 6x - 3 \\ +5x^2 + 5x - 5 \\ \hline +11x - 8 \end{array} \quad \begin{array}{r} | x^2 + x - 1 \\ 2x - 5 \\ \hline \end{array}$$

19d)

$$\begin{array}{r} x^4 + x^3 - x^2 + x + 1 \\ -x^4 \\ \hline x^3 - x^2 + 6x + 1 \\ -x^3 \\ \hline -x^2 + 6x + 6 \end{array} \quad \begin{array}{r} | x^3 - 5 \\ x + 1 \\ \hline \end{array}$$

19e)

$$\begin{array}{r} -6x^5 + x^3 + 2x + 2 \\ +6x^5 + 3x^3 + \frac{9}{2}x^2 \\ \hline +4x^3 + \frac{9}{2}x^2 + 2x + 2 \\ -4x^3 - 2x - 3 \\ \hline \frac{9}{2}x^2 - 1 \end{array} \quad \begin{array}{r} | 4x^3 + 2x + 3 \\ -\frac{3}{2}x^2 + 1 \\ \hline \end{array}$$

19f)

24.10.11 (4)

$$\begin{array}{r} x^8 \\ -x^8 \qquad \qquad \qquad -x^6 \qquad \qquad \qquad -x^4 - 2x^3 \qquad \qquad \qquad -1 \\ \hline \quad \quad \quad -x^6 \qquad \quad \quad -x^4 - 2x^3 \qquad \quad \quad -1 \\ \quad \quad \quad +x^6 \qquad \quad \quad +x^4 \qquad \quad \quad +x^2 + 2x - 1 \\ \hline \qquad \qquad \quad \quad \quad -2x^3 + x^2 + 2x - 1 \end{array}$$
  
$$\begin{array}{r} | x^5 + x^3 + x + 2 \\ \underline{x^3 - x} \\ \end{array}$$

19g)

$$\begin{array}{r} x - 1 \quad | x \\ -x \\ \hline \quad -1 \end{array} = \underline{\underline{1}}$$

19h)

$(x^2 - 1) : (x + 1)$

$$\begin{array}{r} x^2 \quad \cdot \quad -1 \\ -x^2 - x \\ \hline \quad -x - 1 \\ \quad +x + 1 \\ \hline \qquad \quad 0 \end{array}$$

$$\begin{array}{r} | x + 1 \\ \underline{x - 1} \end{array}$$

19i)

$$\begin{array}{r} x^2 - 5x + 6 \\ -x^2 + 2x \\ \hline \quad -3x + 6 \\ \quad +3x - 6 \\ \hline \qquad \quad 0 \end{array}$$
  
$$\begin{array}{r} | x - 2 \\ \underline{x - 3} \end{array}$$

20  
a)

$$\begin{array}{r}
 x^3 - 4x^2 + 5x - 2 \quad | \quad x^2 - 2 \\
 -x^3 \qquad \qquad + 2x \\
 \hline
 / \quad -4x^2 + 7x - 2 \\
 \qquad + 4x^2 \qquad \qquad - 8 \\
 \hline
 / \quad +7x - 10
 \end{array}$$

$$\begin{aligned}
 (x^2 - 2) \cdot (x - 4) + (7x - 10) &= (x^3 - 4x^2 - 2x + 8) + (7x - 10) \\
 &= x^3 - 4x^2 + 5x - 2
 \end{aligned}$$

20 b)

$$\begin{array}{r}
 x^4 \cdot \quad + x^2 \cdot \quad + 3 \quad | \quad x^3 + 3x^2 + 2x + 6 \\
 -x^4 - 3x^3 - 2x^2 - 6x \\
 \hline
 / \quad -3x^3 - x^2 - 6x + 3 \\
 \qquad + 3x^3 + 9x^2 + 6x + 18 \\
 \hline
 / \quad 8x^2 \quad | \quad + 21
 \end{array}$$

$$\begin{aligned}
 (x^3 + 3x^2 + 2x + 6) \cdot (x - 3) + (8x^2 + 21) &= \\
 (x^4 + 3x^3 + 2x^2 + 6x - 3x^3 - 9x^2 - 6x - 18) + (8x^2 + 21) &= \\
 (x^4 - 7x^2 - 18) + (8x^2 + 21) &= \underline{x^4 + x^2 + 3}
 \end{aligned}$$

21)

$$\begin{aligned}
 P(x) &= Q(x) \cdot C(x) + R(x) // R(x) = P(x) - (Q(x) \cdot C(x)) \\
 (x^5 + x^3 - x^2 + 5x - 3) - [(x^3 + x - 1) \cdot (x^2)] &= \\
 (x^5 + x^3 - x^2 + 5x - 3) - (x^5 + x^3 - x^2) &= \\
 x^5 + x^3 - x^2 + 5x - 3 - x^5 - x^3 + x^2 &= 5x - 3 \quad \underline{R(x) = 5x - 3}
 \end{aligned}$$