

P5/5

$$\begin{aligned}
 \text{b) } [P(x)+R(x)] \cdot Q(x) &= (2x^4+3x^3-2x^2+9x-2)(x+5-x^2) = 2x^5+3x^4-2x^3+9x^2-2x+10x^4+ \\
 &+ 15x^3-10x^2+45x-10-2x^6-3x^5+2x^4-9x^3+2x^2 = \\
 &= -2x^6-x^5+15x^4+4x^3+x^2+43x-10
 \end{aligned}$$

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Recordem els productes notables: $(a+b)^2 = a^2+2ab+b^2$ $(a-b)^2 = a^2-2ab+b^2$
 $(a+b)(a-b) = a^2-b^2$

$$\begin{aligned}
 \text{a) } (3x^2-5)^2 &= (3x^2)^2-2 \cdot 3x^2 \cdot 5+5^2 = 9x^4-30x^2+25 \\
 \text{b) } (2x-7)(2x+7) &= (2x)^2-7^2 = 4x^2-49 \\
 \text{c) } (x^2+2x)^2 &= (x^2)^2+2x^2 \cdot 2x+(2x)^2 = x^4+4x^3+4x^2
 \end{aligned}$$

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$$\begin{aligned}
 \text{a) } 9x^2-12x+4 &= (3x)^2-2 \cdot 3x \cdot 2+2^2 = (3x-2)^2 \\
 \text{b) } \frac{25}{49}x^2-16 &= \left(\frac{5}{7}x\right)^2-4^2 = \left(\frac{5}{7}x+4\right)\left(\frac{5}{7}x-4\right)
 \end{aligned}$$

$$\begin{array}{r}
 \text{d) } 2x^6+3x^4-4x+1 \overline{) x^4-2x^2} \\
 \underline{-2x^6+4x^4} \\
 7x^4 \\
 \underline{-7x^4+14x^2} \\
 14x^2-4x+1
 \end{array}$$

$$\begin{array}{r}
 \text{e) } (4x^5-3x^4+9x^2-8x+12) : (x-3) \\
 \begin{array}{r|rrrrrr}
 4 & -3 & 0 & 9 & -8 & 12 \\
 3 & & 12 & 27 & 81 & 270 & 786 \\
 \hline
 4 & 9 & 27 & 90 & 262 & 798
 \end{array} \\
 \text{Quocient} = 4x^4+9x^3+27x^2+90x+262 \quad \text{Residu} = 798
 \end{array}$$

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$$\begin{array}{r|rrrrr}
 \text{c) } (x^4-16) : (x+2) \\
 1 & 0 & 0 & 0 & -16 \\
 -2 & & -2 & 4 & -8 & 16 \\
 \hline
 1 & -2 & 4 & -8 & 0
 \end{array}$$

Quocient = x^3-2x^2+4x-8
Residu = 0