

Corrección Recuperación 2ª Evaluación - Matemáticas 2º ESO

06-04-2018

1. a)  $P(x) = 2x^3 + x^2 + 0x - 2$

b)  $Q(x) = 3x^2 + 2x + 0$

2. a)  $P(-1) = 2(-1)^3 - 2 + (-1)^2 = -2 - 2 + 1 = \boxed{-3}$

b)  $Q(2) = 2(2) + 3(2)^2 = 4 + 12 = \boxed{16}$

3. a)  $2(2x^3 - 2 + x^2) + (2x + 3x^2) = 4x^3 - 4 + 2x^2 + 2x + 3x^2 = \boxed{4x^3 + 5x^2 + 2x - 4}$

b)  $(2x^3 - 2 + x^2) - 3(2x + 3x^2) = 2x^3 - 2 + x^2 - 6x - 9x^2 = \boxed{2x^3 - 8x^2 - 6x - 2}$

c)  $(2x + 3x^2) - (2x^3 - 2 + x^2) = 2x + 3x^2 - 2x^3 + 2 - x^2 = \boxed{-2x^3 + 2x^2 + 2x + 2}$

d)  $(2x^3 - 2 + x^2)(2x + 3x^2) = 4x^4 + 6x^5 - 4x - 6x^2 + 2x^3 + 3x^4 = \boxed{6x^5 + 7x^4 + 2x^3 - 6x^2 - 4x}$

4. a)  $(3x^2 + 2)^2 = 9x^4 + 12x^2 + 4$

b)  $(6x - x^3)^2 = 36x^2 - 12x^4 + x^6$

c)  $(3x^2 + 7x)(3x^2 - 7x) = 9x^4 - 49x^2$

5. a) 
$$\begin{array}{r} 2x^3 - x^2 + 3x - 1 \quad | \quad x^2 - 1 \\ -2x^3 \quad + 2x \quad 2x - 1 \\ \hline -x^2 + 5x - 1 \\ x^2 - 1 \\ \hline -5x - 2 \end{array}$$

b) 
$$\begin{array}{r} x^3 + 0x^2 + 2x - 7 \quad | \quad x + 2 \\ -x^3 - 2x^2 \\ \hline -2x^2 + 2x - 7 \\ 2x^2 + 4x \\ \hline 6x - 7 \\ -6x - 12 \\ \hline -19 \end{array}$$

resto

cociente

cociente

6) a)  $2x+3 = 4x+6x-24-5$   
 $2x-4x-6x = -24-5-3$   
 $-8x = -32 \rightarrow 8x = 32$   
 $x = \frac{32}{8} \rightarrow \boxed{x=4}$

b)  $mcm = 40$   
 $5(2x+3) - 10(x-5) - 4(x-3) = -40$   
 $10x+15 - 10x+50 - 4x+12 = -40$   
 $10x - 10x - 4x = -40 - 15 - 50 - 12$   
 $-4x = -117 \rightarrow \boxed{x = \frac{117}{4}}$

c)  $7x-21+2x = 3x+3$   
 $7x+2x-3x = 3+21$   
 $6x = 24 \rightarrow x = \frac{24}{6} \rightarrow \boxed{x=4}$

d)  $mcm = 2$   
 $6(x-2) = 2 - (2-x) + 2x$   
 $6x-12 = 2-2+x+2x$   
 $6x-x-2x = 12+2-2$   
 $3x = 12 \rightarrow \boxed{x=4}$

7) a)  $-x^2+2x+15=0$   
 $x^2-2x-15=0 \rightarrow x = \frac{2 \pm \sqrt{4+60}}{2} = \frac{2 \pm 8}{2} \rightarrow \boxed{x=5}$   
 $\rightarrow \boxed{x=-3}$

c)  $3x^2-27=0 \rightarrow x^2 = \frac{27}{3} \rightarrow x = \pm\sqrt{9} \rightarrow \boxed{x = \pm 3}$

b)  $5x^2-15x=0 \rightarrow \boxed{x=0}$   
 $\rightarrow 5x-15=0 \rightarrow 5x=15 \rightarrow \boxed{x=3}$

d)  $x^2+2x-9 = x^2+2x-3x-6+3x-3$   
 $x^2+2x-9-x^2-2x+3x+6-3x+3=0$   
 $0x^2+0x+0=0 \rightarrow \boxed{x \in \mathbb{R}} \rightarrow \underline{\text{Es una identidad}}$

e)  $2(x^2-2x+1) = x^2-x$   
 $2x^2-4x+2-x^2+x=0$   
 $x^2-3x+2=0 \rightarrow x = \frac{3 \pm \sqrt{9-8}}{2} = \frac{3 \pm 1}{2} \rightarrow \boxed{x=2}$   
 $\rightarrow \boxed{x=1}$

$$f) X^2 + 5X - 6 = 0 \rightarrow X = \frac{-5 \pm \sqrt{25 + 24}}{2} = \frac{-5 \pm 7}{2} \begin{cases} X = -6 \\ X = 1 \end{cases}$$

$$g) 4X^2 - 25 = 0 \rightarrow X^2 = \frac{25}{4} \rightarrow X = \pm \frac{5}{2}$$

$$h) 2X - 6X^2 = 0 \begin{cases} X = 0 \\ 2 - 6X = 0 \rightarrow X = \frac{1}{3} \end{cases}$$

i)  $X^2 - 2(X^2 - 2X + 1) + 3X = X(X+1) + 2$  ← Se han realinado las potencias  
 $X^2 - 2X^2 + 4X - 2 + 3X = X^2 + X + 2$  ← Se han quitado paréntesis  
 $X^2 - 2X^2 + 4X - 2 + 3X - X^2 - X - 2 = 0$

$$-2X^2 + 6X - 4 = 0$$

$$X^2 - 3X + 2 = 0 \rightarrow X = \frac{3 \pm \sqrt{9 - 8}}{2} = \frac{3 \pm 1}{2} \begin{cases} X = 2 \\ X = 1 \end{cases}$$