ALGEBRA

UDS

RECURSOS HUMANOS

Unidad 3

09 11 23

PROBLEMARIO.

1.- $(3A^3 + 5A^2 - 4) \div (3A)$.

$$\frac{3A^3}{3A} \quad \frac{5A}{3A} \quad \frac{-4}{3A} \qquad \frac{3A^3 + 5A^2 - 4}{3A}$$

$R = 1A^2 + 5/3A - 4/3A$

2.- $(2/3\,A^2B^2 - 1/4\,A^2B^4 + 5/6\,AB^4 - 2/5\,B^5) : (-1/2\,AB^2)$.

$$\frac{2/3\,A^2B^2}{-1/2\,AB^2} \quad \frac{-1/4\,A^2B^4}{-1/2\,AB^2} \quad \frac{5/6\,AB^4}{-1/2\,AB^2} \quad \frac{-2/5\,B^5}{-1/2\,AB^2}$$

$R = -4/3\,AB^0 \quad 2/4\,AB^2 \quad -10/6\,A^0B^2 \quad 4/5\,AB^3$

3.- $(x^4 - 2x^3 - 11x^2 + 30x - 20) : (x^2 + 3x - 2)$.

$$\begin{array}{r|l}
 & x^2 - 5x + 6 \\
\hline
x^2 + 3x - 2 & x^4 - 2x^3 - 11x^2 + 30x - 20 \\
 & -x^4 - 3x^3 + 2x^2 \\
\hline
 & -5x^3 - 9x^2 + 30x \\
 & +5x^3 + 15x^2 - 10x \\
\hline
 & +6x^2 + 20x - 20 \\
 & -6x^2 - 18x + 12 \\
\hline
 & 2x - 20
\end{array}$$

LOVE yourself

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

$$
\begin{array}{r|l}
x^6+0x^5+5x^4+0x^3+3x^2-2x & x^2-x+3 \\
\hline
-x^6+x^5-3x^4 & x^4+x^3+1x^2+2x \\
\cancel{x^5}-2x^4+0x^3 & \\
-\cancel{x^5}+x^4-3x^3 & \\
\cancel{1x^4}-3x^3+3x^2 & \\
-\cancel{1x^4}+1x^3-3x^2 & \\
\cancel{-2x^3}-2x & \\
-\cancel{2x^3}+2x^2-6x & \\
-x^2-6x &
\end{array}
$$

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

$$
\begin{array}{r|l}
x^4-2x^3-11x^2+30x-20 & x^2+3x-2 \\
\hline
-x^4-3x^3+2x^2 & x^2-5x-2 \\
\cancel{-5x^3}-9x^2+30x & \\
+\cancel{5x^3}-15x^2-10x & \\
-24\cancel{x^2}+20x-20 & \\
+\cancel{24x^2}+72x-48 & \\
92x-68 &
\end{array}
$$

LOVE yourself

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

$$
\begin{array}{r|l}
x^6+0x^5+5x^4+0x^3+3x^2-2x+0 & x^2-x+3 \\
\hline
-x^6+5x^5-3x^4 & x^4+5x^3+7x^2-8x-7 \\
\hline
5x^5+2x^4+0x^3 & \\
-5x^5+5x^4-15x^3 & \\
\hline
7x^4-15x^3+3x^2 & \\
-7x^4+7x^3-2x^2 & \\
\hline
-8x^3+1x^2-2x & \\
+8x^3-8x^2+24x & \\
\hline
-7x^2+22x & \\
+7x^2-7x+21 & \\
\hline
-29x+21 &
\end{array}
$$

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

$$
\begin{array}{r|l}
2x^4-2x^3+3x^2+5x+10 & x+2 \\
\hline
-2x^4-4x^3 & 2x^3-6x^2+15x-25 \\
\hline
-6x^3+3x^2 & \\
+6x^3+12x^2+5x & \\
\hline
+15x^2+5x & \\
-15x^2-30x & \\
\hline
-25x+10 & \\
+25x+50 & \\
\hline
R=40 &
\end{array}
$$

LOVE yourself

8 : $(x^{10} - 1024) : (x + 2)$

$$
\begin{array}{r|l}
x^{10} - 0x^9 + 0x^8 + 0x^7 + 0x^6 + 0x^5 + 0x^4 + 0x^3 + 0x^2 + 0x + 1024 & x + 2 \\
\hline
x^9 - 2x^8 + 4x^7 - 8x^6 + 16x^5 - 32x^4 + 64x^3 - 128x^2 + 256x &
\end{array}
$$

$$
\begin{array}{l}
-x^{10} - 2x^9 \\
\hline
-2x^9 + 0x^8 \\
+2x^9 + 4x^8 \\
\hline
+4x^8 + 0x^7 \\
-4x^8 - 8x^7 + 0x^6 \\
\hline
+8x^7 + 0x^6 \\
-8x^7 - 16x^6 + 0x^5 \\
\hline
-16x^6 + 0x^5 \\
+16x^6 + 32x^5 + 0x^4 \\
\hline
+32x^5 + 0x^4 \\
-32x^5 - 64x^4 \\
\hline
-64x^4 + 0x^3 \\
+64x^4 + 128x^3 \\
\hline
+128x^3 + 0x^2 \\
-128x^3 - 256x^2 \\
\hline
+256x^2 + x \\
-256x^2 + 512x \\
\hline
+512x + 1024 \\
+512x + 1024 \\
\hline
\end{array}
$$

LOVE yourself

9: $(x^3 - 5x - 1) : (x - 3)$.

$$
\begin{array}{r|l}
x^3 - 5x - 1 & x^2 - 2x - 1 \\
\hline
-x^3 + 3x^2 & \\
\hline
-2x^2 + 5x & \\
+2x^2 - 6x & \\
\hline
-1x - 1 & \\
+1x - 3 & \\
\hline
-4 & \text{R: } -4
\end{array}
$$

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

$Q^5 R^4 S^3 T^2 U$

11: $(-A^3 B^4 C^2 D^5)^6$

$F^6 D^5 B^4 - A^3 C^2$

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

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

13: $(2/5\, A^2 B - 4/3\, AB - 4)(3/2\, AB^2)$

$$\left(\frac{2A^2B}{5} + \frac{-4AB}{3} - 4\right)\left(\frac{3}{2} AB^2\right).$$

$$\left(\frac{3x2\,A^2B}{15} + \frac{5(-4)AB}{15} + \frac{15(-4)}{15}\right)\left(\frac{3}{2} AB^2\right)$$

$$\left(\frac{6A^2B - 20AB + 60}{15}\right)\left(\frac{3}{2} AB^2\right)$$

LOVE yourself

$$\left(\frac{(6A^2B - 20AB - 60) \times 3AB^2}{15.2}\right)$$

$$\frac{3(6A^2B - 20AB - 60)AB^2}{15.2}$$

$$\frac{3AB^2(6A^2B - 20AB - 60)}{30}$$

$$\frac{6A^3B^3 - 20A^2B^3 - 6AB^2}{10}$$

$$\boxed{R = \frac{3A^3B^3 - 10A^2B^3 - 30AB^2}{5}}$$

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

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

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

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

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

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

$R = 27x^9 + 36x^6y^3 + 12x^3y^6 + 18x^6y^2 + 24x^3y^5 + 8y^8$

LOVE yourself

15 : $(2/6A^3 + 1/3B^2)(2/6A^3 + 1/3B^2)$

$$\frac{2}{6}A3 + \frac{1}{3}B^2$$

$$\frac{2}{6}A3 + \frac{1}{3}B2$$

$$\frac{12}{12}A^6 + \frac{3}{3}B^4$$

$$\boxed{1A^6 + 1B^4}$$