Guía 3

Contenidos

- Operaciones.

1. Calcular:
   (a) $\dfrac{15}{16} - \dfrac{1}{48} - \dfrac{1}{96} - \dfrac{1}{80}$
   (b) $4 + \dfrac{3}{4} - \left(\dfrac{1}{2} \cdot 5\right) + \left(\dfrac{5}{8} \cdot \dfrac{2}{15}\right) - \dfrac{3}{2}\left(\dfrac{1}{2} + \left(\dfrac{1}{2} \cdot 4\right)\right)$
   (c) $3 + \dfrac{1}{3 + \dfrac{1}{1 - \dfrac{1}{3}}}$
   (d) $\dfrac{\dfrac{3/4}{1/6} + \dfrac{17/3}{1/12}}{6 + \left(8 - \dfrac{1}{4}\right)} + 3$
   (e) $\dfrac{\left(\dfrac{1}{10} + \dfrac{2}{25} + \dfrac{3}{40}\right) \cdot \dfrac{1}{6}}{\dfrac{1}{8} - \dfrac{1}{12}}$
   (f) $\dfrac{\left(0.2\overline{4} + \dfrac{1}{3} + 0.\overline{2}\right) \cdot \dfrac{5}{4}}{3 + 0.\overline{153}}$

2. Evaluar las siguientes expresiones algebraicas:
   (a) $a^2 - ab + b^3$, si $a = 2, b = -2$
   (b) $4x^2 - 3x - 1$, si $x = 1$
   (c) $(x + y)^2 - 4xy$, si $x = 3, y = 3$
   (d) $(x^2 + y^2)^2 - 4xy$, si $x = 2, y = x$
   (e) $2ab - 3(a + b) + 2c^2$, si $a = -1, b = \frac{1}{3}, c = -\sqrt{5}$
   (f) $a^2bc + ab^2c + abc^2$, si $a = -2, b = 4$
   (g) $\dfrac{p}{q^2} + \dfrac{q}{p}$, si $p = 2, q = 3$
   (h) $\dfrac{4}{p} - \dfrac{5}{p^2} + \dfrac{1}{p^3}$, si $p = -2$
   (i) $\dfrac{|a - b| + (a + b)}{2}$, si $a > b$
   (j) $\dfrac{|a - b| + (a + b)}{2}$, si $a < b$

(k) $\left(\dfrac{p^2-1}{p}-\dfrac{pq^2}{r}+\dfrac{r^2}{pq}\right)^2-\dfrac{pqr}{p+q+r}$, si $p=2, q=3, r=-4$

(l) $\dfrac{p-\dfrac{2}{p+1}}{1-\dfrac{q+7}{p^2+q+3}}$, si $q=4p, p=2$.

3. Reduzca los términos semejantes en las siguientes expresiones algebraicas:

(a) $(8x-4y+2)+(3x+2y-5)$

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

(c) $-[-(a-2b)-(a+2b)-(a-3b)]$

(d) $3(3x+3y-7)-3(8x-2y+2)$

(e) $-3\{4x(x+2)-2[x^2-(3-x)]\}$

(f) $16x+[-7-(4x^2-1)]-[-(5x+1)+(-2x^2+9-6x)]$

(g) $\left(\frac{2}{3}x-2\right)\left(x-\frac{1}{3}\right)$

(h) $(5x^2+2)(x^2-4)$

(i) $(2\sqrt{x}+1)(4\sqrt{x}-3)$

(j) $(4x+8)(x^2-6x)$

(k) $(z^3+4z-3)(2z^3-7z+1)$

(l) $2u(3u+1)(3u-1)$

4. Factorice las siguientes expresiones

(a) $6x^5y^5+\sqrt{2}x^2y^3+14xy^3$

(b) $xyz^3-xy^3z+x^3yz$

(c) $2p^3-p^2+2p-1$

(d) $3a^2b^3-3\sqrt{2}a^4b^2+9a^2b$

(e) x^4-y^4

(f) $8x^3y^3+27$

(g) $t^2-\frac{1}{4}$

(h) $2p^2+7p+5$

(i) $4x^2+12x+9$

(j) $\frac{m^2}{4}+3\frac{m}{n^2}+\frac{9}{n^4}$

(k) s^8-6561

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

(m) $(x+3)^2(x+2)^3-20(x+3)(x+2)^2$