



# MATEMATICAS

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## FRACCIONES

### EJEMPLO

Paso 1.- Buscamos () . : + o -

Paso 2.- Hacemos el mcm de los denominadores

Paso 3.- Dividimos abajo, multiplicamos arriba

Paso 4.- Hacemos las operaciones que nos indiquen

### 1 NIVEL

a)  $\frac{5}{11} + \frac{3}{11} =$

c)  $\frac{1}{4} + \frac{2}{3} + \frac{6}{7} =$

e)  $\frac{5}{18} + \frac{7}{24} =$

b)  $\frac{4}{7} + \frac{7}{9} =$

d)  $\frac{4}{15} + \frac{3}{20} =$

f)  $\frac{3}{4} + \frac{7}{8} + \frac{11}{12} =$

### 2 NIVEL

a)  $1 - \frac{2}{3} + \frac{3}{8} - \frac{1}{4} =$

c)  $\frac{7}{2} - 3 + \frac{9}{4} - \frac{1}{6} =$

b)  $\frac{13}{2} - 2 + \frac{5}{6} - \frac{1}{2} =$

d)  $\frac{7}{6} + \frac{5}{2} - 3 + \frac{1}{5} =$

### 3 NIVEL

a)  $\frac{3}{5} + \frac{2}{3} \cdot \frac{1}{5} + \frac{1}{3} =$

d)  $\frac{2}{3} + \frac{2}{3} \cdot \frac{1}{2} - \frac{1}{5} : 3 =$

b)  $\frac{4}{5} - \frac{1}{2} : 2 + \frac{3}{10} =$

e)  $\frac{3}{4} \cdot \frac{8}{5} \cdot \frac{1}{8} - \frac{1}{4} + \frac{3}{2} : 6 =$

c)  $\frac{1}{2} + \frac{3}{4} \cdot \frac{1}{2} \cdot \frac{3}{4} + 3 =$

f)  $\frac{9}{4} + \frac{3}{4} : 2 + \frac{1}{2} - \frac{1}{4} \cdot \frac{3}{2} =$

### 4 NIVEL

a)  $\frac{15}{4} - \left( 2 + \frac{1}{3} \right) =$

d)  $\frac{2}{3} \cdot \left( \frac{3}{4} - \frac{1}{6} \right) =$

b)  $\frac{9}{2} - \left( \frac{7}{3} - 2 \right) =$

e)  $\left( \frac{2}{5} + \frac{1}{10} \right) \cdot 3 =$

c)  $\frac{8}{3} - \left( 2 - \frac{1}{4} \right) =$

f)  $\frac{3}{5} \cdot \left( \frac{2}{3} + \frac{3}{5} \right) =$

### 5 NIVEL

a)  $\frac{20}{3} : 2 - \left( 2 + \frac{1}{4} \cdot 2 \right) =$

d)  $\left( \frac{3}{4} + \frac{5}{2} \right) : \frac{1}{2} + 2 \cdot \left( \frac{1}{2} - \frac{1}{4} \right) =$

b)  $\left( 3 + \frac{1}{5} \right) - \frac{2}{3} \cdot \left( \frac{3}{5} - \frac{1}{10} \right) =$

e)  $3 - \left( \frac{1}{2} + \frac{1}{4} \cdot \frac{1}{4} \right) + 2 \cdot \left( \frac{3}{4} + \frac{1}{6} \right) =$

c)  $\left( \frac{2}{3} + \frac{1}{4} \right) : \frac{1}{2} + \frac{1}{3} \cdot \left( 1 - \frac{3}{4} \right) =$

f)  $\left( \frac{2}{5} \cdot \frac{5}{3} + 1 \right) - \frac{1}{5} \cdot \left( 2 + \frac{1}{3} : \frac{1}{6} \right) =$

### 6 NIVEL

a)  $\frac{13}{15} - \frac{2}{3} \left( \frac{1}{4} + \frac{5}{3} \cdot \frac{6}{5} - \frac{1}{30} \right) =$

d)  $\left( \frac{3}{4} + \frac{5}{2} \right) : \frac{1}{2} + 2 \cdot \left( \frac{1}{2} - \frac{1}{4} \right) =$

b)  $5 - 3 \left[ \frac{1}{8} - \frac{2}{3} \cdot \frac{3}{4} + \frac{1}{2} \right] =$

e)  $3 - \left( \frac{1}{2} + \frac{1}{4} \cdot \frac{1}{4} \right) + 2 \cdot \left( \frac{3}{4} + \frac{1}{6} \right) =$

c)  $2 - \frac{2}{3} : \frac{5}{2} + (-2) - \left( \frac{3}{4} + \frac{1}{2} \right) =$

f)  $\left( \frac{2}{5} \cdot \frac{5}{3} + 1 \right) - \frac{1}{5} \cdot \left( 2 + \frac{1}{3} : \frac{1}{6} \right) =$

### 7 NIVEL

a)  $\frac{7}{4} - \left[ 2 - \left( \frac{2}{3} + \frac{1}{2} \right) \right] =$

d)  $\left[ 3 - 2 \cdot \left( 1 - \frac{1}{2} \right) \right] : \frac{1}{2} =$

b)  $\frac{3}{4} \cdot \left[ \frac{7}{3} - \left( \frac{1}{2} + 2 \cdot \frac{1}{4} \right) \right] =$

e)  $3 \cdot \left[ 1 - \frac{1}{4} \right] - \frac{1}{6} \cdot \frac{4}{5} =$

c)  $\frac{3}{4} \cdot \left[ 6 \cdot \left( \frac{2}{3} + \frac{1}{6} \right) - 3 \right] =$

### 1.- EJERCICIO. – Resuelve

$$\frac{13}{15} - \frac{2}{3} \left( \frac{1}{4} + \frac{5}{3} \cdot \frac{6}{5} - \frac{1}{30} \right)$$

$$5 - 3 \left[ \frac{1}{8} - \frac{2}{3} \cdot \frac{3}{4} + \frac{1}{2} \right]$$

$$2 - \frac{2}{3} : \frac{5}{2} + (-2) - \left( \frac{3}{4} + \frac{1}{2} \right)$$

$$\left( \frac{2}{3} - 2 \right) \left( \frac{1}{2} + 5 \right) - \left( 4 + \frac{1}{3} \right) \left( 2 - \frac{1}{3} \right)$$

$$\left( \frac{4}{6} + \frac{3}{6} \right) - \frac{1}{3} =$$

$$\left( \frac{1}{3} + \frac{3}{6} \right) - \left( \frac{2}{5} + \frac{3}{10} \right) =$$

$$\left( \frac{3}{6} + \frac{4}{6} \right) - \left( \frac{2}{5} + \frac{1}{3} \right) + \frac{2}{10} =$$

a)  $1 + \frac{3}{2} : \frac{3}{5} =$

b)  $\frac{7}{22} \cdot \frac{33}{9} + \frac{10}{11} =$

c)  $\frac{1}{3} + \frac{5}{6} - \frac{3}{5} \cdot \frac{3}{2} =$

d)  $\frac{3}{5} \cdot \left( \frac{2}{3} - \frac{2}{5} \right) =$

e)  $\frac{5}{24} : \left( \frac{7}{42} + \frac{9}{14} \right) =$

f)  $\frac{3}{2} \cdot \left( \frac{1}{3} - \frac{1}{5} \right) : \frac{2}{6} =$

g)  $\left( \frac{3}{10} + \frac{12}{4} \right) : \left( \frac{13}{9} - \frac{4}{8} \right) =$

a)  $\frac{3}{4} : \left( \frac{1}{2} + \frac{1}{4} \right) =$

b)  $\left( \frac{3}{5} - \frac{1}{2} \right) : \frac{3}{10} =$

c)  $\left( \frac{3}{2} + 2 \right) \cdot \left( 2 - \frac{12}{7} \right) =$

d)  $\left( \frac{1}{2} + \frac{5}{8} \right) \cdot \left( \frac{1}{3} - \frac{1}{9} \right) =$

a)  $2 - \left( 1 + \frac{2}{3} \right) =$

b)  $1 - \left( \frac{3}{10} + \frac{5}{6} \right) =$

c)  $\left( 2 - \frac{3}{4} \right) - \left( 1 - \frac{1}{4} \right) =$

d)  $\left( \frac{5}{6} + \frac{2}{3} \right) - \left( \frac{3}{2} - \frac{1}{4} \right) =$





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$$\frac{\left[\frac{7}{5} - \frac{2}{5} : \left(2 + \frac{1}{3}\right)\right] \cdot \left(-\frac{1}{43}\right)}{\left[\frac{7}{5} - \left(\frac{2}{5} : 2 + \frac{1}{3}\right)\right] : \left(-1 - \frac{36}{3}\right)} =$$

$$\frac{\frac{1}{2} - \frac{2}{3} \cdot \left(\frac{3}{5} : 3 + \frac{3}{2} - \frac{5}{2}\right) \cdot \frac{1}{2}}{\frac{1}{2} + \left(\frac{2}{3} - \frac{3}{5} \cdot 3 : 2\right) : \left(\frac{5}{2} - \frac{1}{2}\right)} =$$

$$\frac{\frac{4}{3} : \frac{7}{4} + \left(7 + \frac{2}{5}\right) : \frac{7}{3}}{\frac{4}{3} + \frac{7}{4} \left(7 - \frac{2}{5}\right) \frac{7}{3}} =$$

$$\frac{\left(1 - \frac{1}{3} + \frac{5}{6}\right) : \frac{15}{2} : \frac{15}{2}}{1 - \frac{1}{3} + \frac{5}{6} : \frac{15}{2} : \frac{15}{2}} =$$

$$5 \cdot \left(2 \cdot \frac{51}{22} - 3\right) - 8 \cdot \left(4 \cdot \frac{51}{22} - 9\right) =$$

$$\left[\left(\frac{3}{2} - \frac{1}{5}\right) \cdot 5 - \frac{1}{10}\right] \cdot \frac{3}{4} - \frac{6}{5}$$

$$\left[\frac{6}{5} : \frac{9}{10} - \left(2 - \frac{7}{12}\right)\right] + \frac{7}{24}$$

$$\frac{\frac{3}{2} + \frac{4}{3} - \frac{2}{4} + \frac{5}{3}}{\frac{6}{3} + \frac{5}{2} + \frac{5}{6} - \frac{9}{4}} =$$

$$\frac{\left(\frac{-5}{7} \cdot \frac{14}{2} \cdot \frac{-21}{3}\right) \cdot \left(-3 + \frac{7}{6} - \frac{1}{2}\right)}{\left(2 + \frac{1}{3} - \frac{1}{4}\right) \cdot \left(-\frac{1}{6} + \frac{2}{3} - \frac{1}{5}\right)} =$$

$$\frac{\left(\frac{-4}{3} + \frac{-5}{9} + \frac{1}{3}\right) : \left(\frac{3}{4} + \frac{2}{3} - \frac{1}{6}\right)}{\left(\frac{-1}{5} + 1 - \frac{1}{3}\right) \cdot \left(2 + \frac{4}{5}\right)} =$$

$$\frac{\frac{1}{5} + \frac{3}{5} \cdot \frac{25}{6} - 2 : \frac{4}{9}}{\frac{4}{9} \left(\frac{1}{5} - 2\right) - \frac{1}{3}} =$$

$$\frac{\left[\left(\frac{1}{7} - \frac{1}{2}\right) \frac{2}{3} + \frac{1}{3}\right] \frac{2}{5} - 3}{\frac{1}{7} - \frac{1}{2} \frac{2}{3} : \frac{1}{3} \frac{2}{5} - 3} =$$

$$5 \left(2 \cdot \frac{51}{22} - 3\right) - 8 \left(4 \cdot \frac{51}{22} - 9\right) =$$

$$\frac{\left(\frac{8}{3} - \frac{5}{3} \cdot \frac{6}{5} - 1\right) : \left(-\frac{4}{3}\right) + 1}{\frac{8}{3} - \frac{5}{3} \left[\left(\frac{6}{5} - 1\right) : \frac{4}{3} + 1\right]} =$$

$$\frac{1 - \frac{1}{3} + \frac{3}{2} + \frac{5}{2} : \left[\frac{5}{2} \cdot \left(-\frac{4}{15}\right)\right]}{1 : \frac{1}{3} : \frac{3}{2} - \frac{1}{2} - \left(1 - \frac{1}{2}\right)} =$$

$$\left[5 + \frac{5}{6} : \left(\frac{7}{5} - \frac{2}{5} \cdot \frac{15}{4}\right)\right] \cdot \left(-\frac{2}{5}\right) =$$

$$\frac{4}{5} \cdot \left[\frac{12}{16} \left(\frac{1}{6} + \frac{2}{3}\right) - \frac{3}{8}\right] - 3 \left[\frac{1}{6} : \left(1 - \frac{2}{5}\right)\right] =$$

$$1 - \left[\frac{3}{2} \cdot 5 - \frac{1}{2} \cdot \left(\frac{2}{3} + \frac{1}{9}\right)\right]$$

$$-\frac{3}{8} \left[3 - \frac{3}{5} - \left(\frac{17}{20} - 1\right) \cdot \left(\frac{1}{3} - 3\right)\right]$$

$$\frac{\frac{3}{5} \cdot \frac{15}{6} - \frac{2}{3} \cdot \frac{14}{6}}{\frac{1}{3} : \frac{6}{6} + \frac{2}{2} - \frac{4}{6}} =$$

$$\frac{3 \cdot \left(\frac{1}{2} + \frac{1}{3} - \frac{1}{6}\right) - 7 \cdot \left(-\frac{1}{4} + \frac{3}{4} - \frac{1}{8}\right)}{\left(\frac{1}{7} : \frac{1}{4}\right) - \left(\frac{3}{2} \cdot \frac{1}{2}\right)} =$$

$$\frac{\left(-2 + \frac{7}{4} - \frac{1}{3}\right) : \left(-\frac{1}{7} + \frac{2}{3} - 1\right)}{\left(-\frac{1}{3} + \frac{2}{5} - 1\right) : \left(-\frac{1}{2} + 3\right)} =$$

$$\frac{2 - \frac{5}{3} : \left(1 + \frac{1}{5}\right) - 2}{2 : \frac{5}{3} + 1 - \frac{1}{5} : 2} =$$

$$\frac{\left[\left(\frac{1}{2} + \frac{3}{2} \frac{8}{27}\right) \frac{2}{5} - 3\right] : \frac{3}{2}}{\left(\frac{1}{2} + \frac{3}{2}\right) \frac{8}{27} \left(\frac{2}{5} - 3 : \frac{3}{2}\right)} =$$

$$\frac{\frac{2}{3} + \frac{4}{3} : \left(3 - \frac{4}{5} \cdot \frac{15}{2}\right)}{\frac{2}{3} + \frac{4}{3} : \left[\left(3 - \frac{4}{5}\right) \cdot \frac{15}{2}\right]} =$$

$$\frac{\frac{5}{4} - \frac{3}{5} : \left[2 + \frac{3}{5} \left(\frac{6}{9} : \frac{3}{4}\right)\right]}{\frac{5}{4} : \frac{3}{5} \left(2 + \frac{3}{5} : \frac{6}{9}\right) - \frac{3}{4}} =$$

$$\frac{\frac{21}{2} - \frac{19}{2} : \left(\frac{1}{5} + \frac{2}{5} \cdot \frac{15}{8}\right)}{\left(\frac{21}{2} - \frac{19}{2}\right) : \frac{1}{5} + \frac{2}{5} \cdot \frac{15}{8}} =$$

$$\left(\frac{1}{2} + \frac{1}{3}\right) - \left[\frac{5}{2} - \left(2 + \frac{1}{3}\right) \cdot \left(1 - \frac{1}{7}\right)\right] \cdot \left(1 - \frac{1}{3}\right) =$$

$$\left(\frac{3}{2} - \frac{1}{5} + \frac{1}{10}\right) \cdot 5 - \frac{3}{4} \cdot \frac{6}{5}$$

$$1 - \frac{3}{2} \cdot 4 - \frac{1}{3} \cdot \left(\frac{1}{5} - \frac{1}{10}\right)$$

$$\frac{3}{7} - \left(\frac{1}{5} \cdot \frac{7}{2}\right) \cdot \frac{3}{5} - \frac{7}{3} =$$

$$\frac{\left(\frac{3}{2} + \frac{4}{5}\right) \cdot \left(\frac{7}{3} - \frac{5}{2}\right)}{\frac{2}{3} + \frac{-5}{4} - \left(\frac{4}{2} - \frac{3}{4}\right)} =$$

$$\frac{\left(\frac{-5}{7} \cdot \frac{14}{2} \cdot \frac{-21}{3}\right) \cdot \left(-3 + \frac{7}{6} - \frac{1}{2}\right)}{\left(2 + \frac{1}{3} - \frac{1}{4}\right) \cdot \left(-\frac{1}{6} + \frac{2}{3} - \frac{1}{5}\right)} =$$

$$\frac{\frac{1}{3} : \left(2 + \frac{2}{5} \cdot \frac{25}{8}\right)}{\left(-\frac{2}{5} + \frac{1}{3} : 2\right) \cdot \frac{25}{8}} =$$

$$\frac{\frac{3}{5} : \frac{1}{2} + \frac{2}{5} - \frac{1}{5} : \left(\frac{3}{5} \cdot \frac{10}{9}\right)}{\frac{3}{5} + \frac{1}{5} : \frac{2}{5} \frac{1}{5} \left(\frac{3}{5} + \frac{10}{9}\right)} =$$

$$\frac{\frac{4}{3} - \frac{2}{3} \left(2 - \frac{2}{3} + \frac{1}{5}\right) : \frac{2}{5} - \frac{1}{5}}{\frac{4}{3} : \frac{2}{3} \cdot 2 - \left(\frac{2}{3} + \frac{1}{5} : \frac{2}{5}\right) - \frac{1}{5}} =$$



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