

Fracciones combinadas 2º - 3º ESO

Ejercicios resueltos:

1º Combinada sin potencias:

$$\frac{1}{2} \cdot \left(\frac{3}{4} + \frac{1}{8}\right) = \frac{1}{2} \cdot \left(\frac{6+1}{8}\right) = \frac{1}{2} \cdot \frac{7}{8} = \frac{7}{16}$$

2º Combinada con potencias:

$$\frac{\left(2 - \frac{1}{5}\right)^2}{\left(3 - \frac{2}{9}\right)^{-1}} : \frac{\left(\frac{6}{7} \cdot \frac{5}{4} - \frac{2}{7} : \frac{1}{2}\right)^3}{\left(\frac{1}{2} - \frac{1}{3} \cdot \frac{1}{4} : \frac{1}{5}\right)} - 5\frac{1}{7} =$$

$$= \frac{\left(\frac{10-1}{5}\right)^2}{\left(\frac{27-2}{9}\right)^{-1}} : \frac{\left(\frac{30}{28} - \frac{4}{7}\right)^3}{\left(\frac{1}{2} - \frac{1}{12} : \frac{1}{5}\right)} - \frac{35+1}{7} =$$

$$= \frac{\left(\frac{9}{5}\right)^2}{\left(\frac{25}{9}\right)^{-1}} : \frac{\left(\frac{15}{14} - \frac{4}{7}\right)^3}{\left(\frac{1}{2} - \frac{5}{12}\right)} - \frac{36}{7} =$$

$$= \frac{\left(\frac{9}{5}\right)^2}{\left(\frac{25}{9}\right)^{-1}} : \frac{\left(\frac{15-8}{14}\right)^3}{\left(\frac{6-5}{12}\right)} - \frac{36}{7} =$$

$$= \frac{\left(\frac{9}{5}\right)^2}{\left(\frac{25}{9}\right)^{-1}} : \frac{\left(\frac{1}{2}\right)^3}{\frac{1}{12}} - \frac{36}{7} =$$

$$= \frac{81}{25} : \frac{1}{8} - \frac{36}{7} = \frac{81}{9} : \frac{12}{8} - \frac{36}{7} =$$

$$= 9 : \frac{3}{2} - \frac{36}{7} = \frac{18}{3} - \frac{36}{7} = 6 - \frac{36}{7} = \frac{42-36}{7} = \frac{6}{7}$$

Ejercicios Propuestos:

sol

$$5 \cdot \frac{1}{2} + 1 \cdot \frac{1}{6} = \frac{77}{22}$$

$$\frac{2}{3} : \frac{3}{4} - \frac{1}{5} \cdot \frac{3}{7} = \frac{253}{315}$$

$$\left(3 + \frac{1}{4}\right) - \left(2 + \frac{1}{6}\right) = \frac{13}{12}$$

$$\left(\frac{1}{5} - \frac{2}{3} : 2\right) - \left(\frac{1}{5} \cdot \frac{-2}{3}\right) = 0$$

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

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

$$\left(\frac{3}{4} + \frac{1}{2}\right) : \left(\frac{5}{3} + \frac{1}{6}\right) = \frac{15}{22}$$

$$\frac{2}{3} : \left[5 : \left(\frac{2}{4} + 1\right) - 3\left(\frac{1}{2} - \frac{1}{4}\right)\right] = \frac{8}{31}$$

$$\left[\left(\frac{2}{3} - \frac{1}{9}\right) + 13\left(\frac{2}{3} - 1\right)^2\right] : \left[\left(\frac{1}{2} - 1\right) : 2\frac{1}{2}\right] = -10$$

$$\frac{5}{4} - \frac{3}{5} : \left[2 + \frac{3}{5} \left(\frac{6}{9} : \frac{3}{4}\right)\right] = \frac{5}{4} : \frac{3}{5} \left(2 + \frac{3}{5} : \frac{6}{9}\right) - \frac{3}{4} \quad (462/2413)$$

Fraciones combinadas con potencias

1.- Simplifica y expresa el resultado como potencia:

a) $\frac{5^7 \cdot 3^3 \cdot 6^{-4}}{6^{-2} \cdot 3^{-3} \cdot 5^{-14}}$

c) $9^2 \cdot 3^{-2} \cdot 27$

$\frac{\left(\frac{2}{5}\right)^{-2}}{\left(\frac{2}{5}\right)^{-3}} =$ (Sol: 2/5)

b) $2 \cdot \frac{3}{4} \cdot \frac{2^{-3}}{3^2} \cdot \left(\frac{3}{8}\right)^2$

d) $\left[\left(\frac{1}{5}\right)^3\right]^{-2} \cdot 25$

Sol: a) $\frac{5^{21} \cdot 3^4}{2^2}$ b) $\frac{3^2}{2^{10}}$ c) 3^5 d) 5^8

$\frac{5^3}{(5^{-2})^3 \cdot 5} =$ (Sol: 5⁸)

$\left(\frac{1}{6} \cdot \frac{3}{2}\right)^5 =$ (Soluc: 1/1024)

$\frac{\left(\frac{2}{3}\right)^{-1} \left(\frac{2}{3}\right)^4}{\left(\frac{2}{3}\right)^{-2}} =$ (Sol: (2/3)⁵)

$\left[\left(-\frac{6}{5}\right) \cdot \frac{1}{8} \cdot (-2)\right]^{-4} =$ (Soluc: 10000/81)

$\left(\frac{2}{3}\right)^{-4} \cdot \left(\frac{5}{3}\right)^{-3} \cdot \left(\frac{1}{4}\right)^{-3} \cdot \left(-\frac{3}{5}\right)^{-5} =$
(Soluc: -900)

$\frac{2^3 \cdot 2^4 \cdot 5^3 \cdot 5^{-1}}{2^{-1} \cdot 2^2 \cdot 5^{-2} \cdot 5^{-3}} =$ (Soluc: 2⁶ · 5⁷)

$\left[\frac{15}{7} \cdot \left(\frac{21}{5}\right)^2 \cdot (-1) \cdot \frac{2}{3}\right]^3 =$ (Soluc: $-\frac{3^6 \cdot 7^3 \cdot 2^3}{5^3}$)

$\frac{3^{-2} \cdot 7^2 \cdot 3 \cdot 7^{-4} \cdot 3^5}{7^3 \cdot 3^{-1} \cdot 7^{-5} \cdot 3^4} =$ (Soluc: 3)

$\frac{\left(\frac{2}{7}\right)^2 \cdot \left(\frac{2}{7}\right)^5}{\left(\frac{2}{7}\right)^4} =$ (Soluc: 8/343)

$\frac{3^8 \cdot 7^{-1} \cdot 5^2 \cdot 7^3 \cdot 3^{-2}}{7^4 \cdot 5^{-1} \cdot 3^5 \cdot 5^3 \cdot 7^{-2}} =$ (Soluc: 3)

$a^2 \cdot a^{-2} \cdot a^3 =$ (Soluc: a³)

$\frac{2^3 \cdot 4^5 \cdot 2^6 \cdot 2 \cdot 8^{30}}{16 \cdot 2^3 \cdot 32 \cdot 2^4} =$ (Soluc: 2³⁴)

$\frac{(2^{-5})^0}{2^{-3}} =$ (Soluc: 8)

$\frac{15^2 \cdot 3^2 \cdot 5^3 \cdot 45^2}{25 \cdot 5^3 \cdot 125 \cdot 27} =$ (Soluc: 243/5)

$\frac{\left(-\frac{2}{3}\right)^2 \cdot \left(\frac{1}{3}\right)^{-3} + \left(-\frac{1}{2}\right)^{-3}}{\left[(-2)^3\right]^2 + (-3)^3 \cdot (-3)^2} =$ (Sol: -4/179)

$\frac{6 \cdot 12^3 \cdot 18^2 \cdot 3^2 \cdot 108^2}{27^2 \cdot 3^2 \cdot 16 \cdot 48 \cdot 36} =$ (Soluc: 1944)

$\frac{2^2 \cdot (2^3 \cdot 2^4)^{-5} \cdot 2^{-3}}{2^3 \cdot (2^{-2})^{-3}} =$ (Soluc: 2)

$\frac{\left[\left(\frac{2}{3}\right)^2 \left(\frac{2}{3}\right)^{-4} \left(\frac{3}{2}\right)^{-3}\right]^2 - \left[\left(\frac{2}{3}\right)^2\right]^{-3} \left(\frac{3}{2}\right)^{-5}}{\left(\frac{1}{2}\right)^{-1} \left[\left(\frac{4}{9}\right)^2\right]^{-1} \left(-\frac{3}{2}\right)^2 \frac{1}{3^4} 2^{-1}} =$ (Sol: -608/81)

$\frac{15^2 \cdot 5^{-2} \cdot 5^3 \cdot 45^2}{(5^3)^2 \cdot 27 \cdot 3^{-2}} =$ (Soluc: 243/5)