

1 Calcula y simplifica la fracción resultante:

a) $\left(\frac{1}{2} - \frac{3}{8} - 3\right) : \frac{1}{2}$

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

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

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

Solución.

a) $\left(\frac{1}{2} - \frac{3}{8} - 3\right) : \frac{1}{2} = \left(\frac{4}{8} - \frac{3}{8} - \frac{24}{8}\right) : \frac{1}{2} = \frac{-23}{8} : \frac{1}{2} = \frac{-46}{8} = \frac{-23}{4}$

b) $\frac{1}{2} \cdot \left(2 - \frac{3}{2} - \frac{5}{6}\right) = \frac{1}{2} \cdot \left(\frac{12}{6} - \frac{9}{6} - \frac{5}{6}\right) = \frac{1}{2} \cdot \frac{-2}{6} = \frac{-2}{12} = \frac{-1}{6}$

c) $\left(\frac{1}{5} + \frac{1}{4}\right) : \left(\frac{9}{2} - \frac{1}{3}\right) = \left(\frac{4}{20} + \frac{5}{20}\right) : \left(\frac{27}{6} - \frac{2}{6}\right) = \frac{9}{20} : \frac{25}{6} = \frac{54}{500} = \frac{27}{250}$

d) $2 + \frac{1}{4} : \left(6 + \frac{1}{3}\right) = 2 + \frac{1}{4} : \left(\frac{18}{3} + \frac{1}{3}\right) = 2 + \frac{1}{4} : \frac{19}{3} = 2 + \frac{3}{76} = \frac{152}{76} + \frac{3}{76} = \frac{155}{76}$

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enunciados

2 Calcula y simplifica la fracción resultante:

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

c) $3 - \frac{5}{7} : \left(\frac{9}{14} - \frac{1}{2}\right)$

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

d) $\left(\frac{5}{6} - 5\right) : \left(\frac{9}{12} - \frac{1}{9}\right)$

Solución.

a) $\left(\frac{5}{4} - \frac{2}{3} + 2\right) : \frac{7}{4} = \left(\frac{15}{12} - \frac{8}{12} + \frac{24}{12}\right) : \frac{7}{4} = \frac{31}{12} : \frac{7}{4} = \frac{124}{84} = \frac{31}{21}$

b) $1 - \left(\frac{2}{3} - \frac{2}{5}\right) \cdot \frac{9}{2} = 1 - \left(\frac{10}{15} - \frac{6}{15}\right) \cdot \frac{9}{2} = 1 - \frac{4}{15} \cdot \frac{9}{2} = 1 - \frac{36}{30} = \frac{30}{30} - \frac{36}{30} = \frac{-6}{30} = \frac{-1}{5}$

c) $3 - \frac{5}{7} : \left(\frac{9}{14} - \frac{1}{2}\right) = 3 - \frac{5}{7} : \left(\frac{9}{14} - \frac{7}{14}\right) = 3 - \frac{5}{7} : \frac{2}{14} = 3 - \frac{70}{14} = \frac{42}{14} - \frac{70}{14} = \frac{-28}{14} = -2$

d) $\left(\frac{5}{6} - 5\right) : \left(\frac{9}{12} - \frac{1}{9}\right) = \left(\frac{5}{6} - \frac{30}{6}\right) : \left(\frac{27}{36} - \frac{4}{36}\right) = \frac{-25}{6} : \frac{23}{36} = \frac{-900}{138} = \frac{-150}{23}$

Volver a los
enunciados

3 Calcula y simplifica la fracción resultante:

$$\text{a) } 2 : \left[\frac{1}{3} - \frac{4}{5} \cdot \left(2 - \frac{5}{3} \right) \right]$$

$$\text{c) } \left[\left(3 + \frac{1}{2} \right) + \left(\frac{2}{3} - \frac{1}{12} \right) \right] : \left(1 - \frac{2}{7} \right)$$

$$\text{b) } \left(1 - \frac{2}{5} \right) \cdot \left[\left(\frac{1}{2} - 2 \right) : \left(\frac{2}{3} - 3 \right) \right]$$

$$\text{d) } \left(\frac{1}{3} - \frac{5}{4} \right) : \left(\frac{5}{14} - \frac{1}{2} \right) + \left(-1 + \frac{3}{4} \right)$$

Solución.

$$\begin{aligned} \text{a) } 2 : \left[\frac{1}{3} - \frac{4}{5} \cdot \left(2 - \frac{5}{3} \right) \right] &= 2 : \left[\frac{1}{3} - \frac{4}{5} \cdot \left(\frac{6}{3} - \frac{5}{3} \right) \right] = 2 : \left[\frac{1}{3} - \frac{4}{5} \cdot \frac{1}{3} \right] = 2 : \left[\frac{1}{3} - \frac{4}{15} \right] = 2 : \left[\frac{5}{15} - \frac{4}{15} \right] = \\ &= 2 : \frac{1}{15} = \frac{30}{1} = \mathbf{30} \end{aligned}$$

$$\begin{aligned} \text{b) } \left(1 - \frac{2}{5} \right) \cdot \left[\left(\frac{1}{2} - 2 \right) : \left(\frac{2}{3} - 3 \right) \right] &= \left(\frac{5}{5} - \frac{2}{5} \right) \cdot \left[\left(\frac{1}{2} - \frac{4}{2} \right) : \left(\frac{2}{3} - \frac{9}{3} \right) \right] = \frac{3}{5} \cdot \left[\frac{-3}{2} : \frac{-7}{3} \right] = \frac{3}{5} \cdot \frac{-9}{-14} = \\ &= \frac{-27}{-70} = \mathbf{\frac{27}{70}} \end{aligned}$$

$$\begin{aligned} \text{c) } \left[\left(3 + \frac{1}{2} \right) + \left(\frac{2}{3} - \frac{1}{12} \right) \right] : \left(1 - \frac{2}{7} \right) &= \left[\left(\frac{6}{2} + \frac{1}{2} \right) + \left(\frac{8}{12} - \frac{1}{12} \right) \right] : \left(\frac{7}{7} - \frac{2}{7} \right) = \left[\frac{7}{2} + \frac{7}{12} \right] : \frac{5}{7} = \\ &= \left[\frac{42}{12} + \frac{7}{12} \right] : \frac{5}{7} = \frac{49}{12} : \frac{5}{7} = \mathbf{\frac{343}{60}} \end{aligned}$$

$$\begin{aligned} \text{d) } \left(\frac{1}{3} - \frac{5}{4} \right) : \left(\frac{5}{14} - \frac{1}{2} \right) + \left(-1 + \frac{3}{4} \right) &= \left(\frac{4}{12} - \frac{15}{12} \right) : \left(\frac{5}{14} - \frac{7}{14} \right) + \left(\frac{-4}{4} + \frac{3}{4} \right) = \frac{-11}{12} : \frac{-2}{14} + \left(\frac{-1}{4} \right) = \\ &= \frac{-154}{-24} - \frac{1}{4} = \frac{77}{12} - \frac{1}{4} = \frac{77}{12} - \frac{3}{12} = \frac{74}{12} = \mathbf{\frac{37}{6}} \end{aligned}$$

Simplificamos la primera fracción antes de continuar. También le quitamos los signos menos (menos entre menos es más).

Volver a los enunciados

4 Calcula y simplifica la fracción resultante:

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

$$\text{c) } \left[\left(\frac{1}{7} - \frac{1}{3} \right) + \left(\frac{5}{2} - \frac{1}{3} \right) \right] : \left(\frac{5}{6} - \frac{3}{7} \right)$$

$$\text{b) } \left(\frac{1}{5} - \frac{2}{6} \right) + \left(\frac{1}{12} - \frac{1}{15} \right) : \left(\frac{7}{10} - 4 \right)$$

$$\text{d) } 3 : \left[\frac{1}{2} - \frac{2}{3} \cdot \left(4 - \frac{2}{5} \right) \right]$$

Solución.

$$\begin{aligned} \text{a) } \frac{2}{3} + \left(\frac{2}{3} : \frac{1}{2} + 1 - \frac{3}{5} \right) \cdot 2 &= \frac{2}{3} + \left(\frac{4}{3} + 1 - \frac{3}{5} \right) \cdot 2 = \frac{2}{3} + \left(\frac{20}{15} + \frac{15}{15} - \frac{9}{15} \right) \cdot 2 = \frac{2}{3} + \frac{26}{15} \cdot 2 = \frac{2}{3} + \frac{52}{15} = \\ &= \frac{10}{15} + \frac{52}{15} = \frac{62}{15} \end{aligned}$$

$$\begin{aligned} \text{b) } \left(\frac{1}{5} - \frac{2}{6} \right) + \left(\frac{1}{12} - \frac{1}{15} \right) : \left(\frac{7}{10} - 4 \right) &= \left(\frac{6}{30} - \frac{10}{30} \right) + \left(\frac{5}{60} - \frac{4}{60} \right) : \left(\frac{7}{10} - \frac{40}{10} \right) = \frac{-4}{30} + \frac{1}{60} : \frac{-33}{10} = \\ &= \frac{-4}{30} + \frac{10}{-1980} = \frac{-264}{1980} + \frac{-10}{1980} = \frac{-274}{1980} = \frac{-137}{990} \end{aligned}$$

$$\begin{aligned} \text{c) } \left[\left(\frac{1}{7} - \frac{1}{3} \right) + \left(\frac{5}{2} - \frac{1}{3} \right) \right] : \left(\frac{5}{6} - \frac{3}{7} \right) &= \left[\left(\frac{3}{21} - \frac{7}{21} \right) + \left(\frac{15}{6} - \frac{2}{6} \right) \right] : \left(\frac{35}{42} - \frac{18}{42} \right) = \left[\frac{-4}{21} + \frac{13}{6} \right] : \frac{17}{42} = \\ &= \left[\frac{-8}{42} + \frac{91}{42} \right] : \frac{17}{42} = \frac{83}{42} : \frac{17}{42} = \frac{83 \cdot 42}{42 \cdot 17} = \frac{83}{17} \end{aligned}$$

$$\begin{aligned} \text{d) } 3 : \left[\frac{1}{2} - \frac{2}{3} \cdot \left(4 - \frac{2}{5} \right) \right] &= 3 : \left[\frac{1}{2} - \frac{2}{3} \cdot \left(\frac{20}{5} - \frac{2}{5} \right) \right] = 3 : \left[\frac{1}{2} - \frac{2}{3} \cdot \frac{18}{5} \right] = 3 : \left[\frac{1}{2} - \frac{36}{15} \right] = \\ &= 3 : \left[\frac{15}{30} - \frac{72}{30} \right] = 3 : \frac{-57}{30} = \frac{90}{-57} = \frac{30}{-19} \end{aligned}$$

Volver a los
enunciados