

1. Ejercicios de suma de fracciones. SIMPLIFICAR ANTES DE R.C.DENOMINADOR

$$\text{Ej: } \frac{44}{33} - \frac{4}{12} + \frac{30}{18} - \frac{28}{21} \rightarrow \frac{4}{3} \quad \boxed{=}$$

$$\frac{44}{33} - \frac{4}{12} + \frac{30}{18} - \frac{28}{21} = \frac{2^2 \cdot 11}{3 \cdot 11} - \frac{2^2}{3 \cdot 2^2} + \frac{3 \cdot 2 \cdot 5}{3 \cdot 2 \cdot 3} - \frac{7 \cdot 2^2}{7 \cdot 3} = \frac{4}{3} - \frac{1}{3} + \frac{5}{3} - \frac{4}{3} = \frac{9-5}{3} = \frac{4}{3}$$

$$\text{Ej: } \frac{35}{14} + \frac{9}{54} - \frac{14}{42} + \frac{15}{30} \rightarrow \frac{17}{6}$$

$$\frac{35}{14} + \frac{9}{54} - \frac{14}{42} + \frac{15}{30} = \frac{5 \cdot 7}{2 \cdot 7} + \frac{3^2}{3^2 \cdot 2 \cdot 3} - \frac{2 \cdot 7}{2 \cdot 3 \cdot 7} + \frac{3 \cdot 5}{3 \cdot 2 \cdot 5} = \frac{5}{2} + \frac{1}{6} - \frac{1}{3} + \frac{1}{2} = \frac{15}{6} + \frac{1}{6} - \frac{2}{6} + \frac{3}{6} = \frac{19-2}{6} = \frac{17}{6}$$

$$\text{Ej: } \frac{12}{24} + \frac{39}{26} + \frac{55}{22} - \frac{45}{30} + \frac{5}{2} \rightarrow \frac{11}{2}$$

$$\frac{12}{24} + \frac{39}{26} + \frac{55}{22} - \frac{45}{30} + \frac{5}{2} = \frac{3 \cdot 2^2}{2 \cdot 3 \cdot 2^2} + \frac{3 \cdot 13}{2 \cdot 13} + \frac{11 \cdot 5}{2 \cdot 11} - \frac{3^2 \cdot 5}{2 \cdot 3 \cdot 5} + \frac{5}{2} = \frac{1}{2} + \frac{3}{2} + \frac{5}{2} - \frac{3}{2} + \frac{5}{2} = \frac{14-3}{2} = \frac{11}{2}$$

$$\text{Ej: } \frac{35}{42} - \frac{12}{24} + \frac{20}{30} - \frac{16}{48} \rightarrow \frac{2}{3}$$

$$\frac{35}{42} - \frac{12}{24} + \frac{20}{30} - \frac{16}{48} = \frac{7 \cdot 5}{2 \cdot 3 \cdot 7} - \frac{2 \cdot 2 \cdot 3}{3 \cdot 2 \cdot 2 \cdot 2} + \frac{2 \cdot 2 \cdot 5}{2 \cdot 3 \cdot 5} - \frac{2^3 \cdot 2}{2 \cdot 3 \cdot 2^3} = \frac{5}{6} - \frac{1}{2} + \frac{2}{3} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} + \frac{4}{6} - \frac{2}{6} = \frac{9-2+4-2}{6} = \frac{4}{6} = \frac{2}{3}$$

$$\text{a) } \frac{26}{39} - \frac{15}{60} - \frac{27}{72} - \frac{44}{66} \rightarrow -\frac{5}{8}$$

$$\text{e) } \frac{34}{51} - \frac{24}{72} - \frac{68}{12} + \frac{25}{6} \rightarrow -\frac{7}{6}$$

$$\text{i) } \frac{32}{14} + \frac{60}{42} + \frac{20}{70} + \frac{2}{14} \rightarrow \frac{29}{7}$$

$$\text{b) } \frac{12}{36} + \frac{27}{12} + \frac{28}{21} - \frac{63}{28} \rightarrow \frac{5}{3}$$

$$\text{f) } \frac{99}{66} - \frac{77}{42} - \frac{14}{12} - \frac{1}{6} \rightarrow -\frac{5}{3}$$

$$\text{j) } \frac{27}{15} - \frac{24}{40} - \frac{32}{60} + \frac{10}{75} \rightarrow \frac{4}{5}$$

$$\text{c) } \frac{24}{21} - \frac{12}{28} - \frac{40}{56} - \frac{4}{14} \rightarrow -\frac{2}{7}$$

$$\text{g) } \frac{24}{36} - \frac{30}{90} - \frac{35}{45} - \frac{2}{9} \rightarrow -\frac{2}{3}$$

$$\text{k) } \frac{105}{35} - \frac{45}{40} - \frac{64}{30} + \frac{35}{75} \rightarrow \frac{5}{24}$$

$$\text{d) } \frac{45}{27} - \frac{77}{42} - \frac{26}{39} - \frac{5}{6} \rightarrow -\frac{5}{3}$$

$$\text{h) } \frac{38}{10} + \frac{21}{45} - \frac{24}{15} - \frac{1}{6} \rightarrow \frac{5}{2}$$

$$\text{l) } \frac{51}{34} - \frac{46}{69} - \frac{45}{90} + \frac{5}{15} \rightarrow \frac{2}{3}$$

2. Ejercicios de multiplicaciones y divisiones de fracciones. SIMPLIFICAR CUANDO SE MULTIPLICA O DIVIDE Y ANTES DE R.C.DENOMINADOR

$$\text{Ej: } \frac{15}{5} \cdot \frac{75}{45} - \frac{2}{3} + \left(-\frac{14}{6}\right) \rightarrow 2$$

$$\frac{15}{5} \cdot \frac{75}{45} - \frac{2}{3} + \left(-\frac{14}{6}\right) = \frac{3 \cdot 5 \cdot 3 \cdot 5^2}{5 \cdot 3^2 \cdot 5} - \frac{2}{3} - \frac{2 \cdot 7}{2 \cdot 3} = 5 - \frac{2}{3} - \frac{7}{3} = \frac{15}{3} - \frac{2}{3} - \frac{7}{3} = \frac{15-9}{3} = \frac{6}{3} = 2$$

$$\text{Ej: } \frac{36}{75} \cdot \frac{25}{8} - \frac{28}{56} - \left(-\frac{1}{6}\right) \rightarrow \frac{7}{6}$$

$$\frac{36}{75} \cdot \frac{25}{8} - \frac{28}{56} - \left(-\frac{1}{6}\right) = \frac{2^2 \cdot 3^2 \cdot 5^2}{3 \cdot 5^2 \cdot 2^3} - \frac{2^2 \cdot 7}{7 \cdot 2^3} + \frac{1}{6} = \frac{3}{2} - \frac{1}{2} + \frac{1}{6} = \frac{9}{6} - \frac{3}{6} + \frac{1}{6} = \frac{10-3}{6} = \frac{7}{6}$$

$$\text{Ej: } \frac{48}{35} - \frac{14}{6} - \frac{36}{45} - \left(+\frac{13}{5}\right) \rightarrow -\frac{1}{5}$$

$$\frac{48}{35} - \frac{14}{6} - \frac{36}{45} - \left(+\frac{13}{5}\right) = \frac{2 \cdot 3 \cdot 2^3 \cdot 2 \cdot 7}{7 \cdot 5 \cdot 2 \cdot 3} - \frac{2^2 \cdot 3^2}{3^2 \cdot 5} - \frac{13}{5} = \frac{16}{5} - \frac{4}{5} - \frac{13}{5} = \frac{16-17}{5} = -\frac{1}{5}$$

$$\text{Ej. } \frac{12}{36} \cdot \frac{81}{24} - \frac{28}{14} - \left(-\frac{13}{4}\right) \rightarrow \frac{19}{8}$$

$$\frac{12}{36} \cdot \frac{81}{24} - \frac{28}{14} - \left(-\frac{13}{4}\right) = \frac{3 \cdot 2^2 \cdot 3^2 \cdot 3^2}{2^2 \cdot 3^2 \cdot 2^2 \cdot 2 \cdot 3} - \frac{7 \cdot 2^2}{7 \cdot 2} + \frac{13}{2 \cdot 2} = \frac{3^2}{2^2 \cdot 2} - \frac{2^2}{2} + \frac{13}{2 \cdot 2} = \frac{9}{8} - 2 + \frac{13}{4} = \frac{9}{8} - \frac{16}{8} + \frac{26}{8} = \frac{35}{8} - \frac{16}{8} = \frac{19}{8}$$

$$\text{Ej. } \frac{7}{24} \cdot \frac{48}{56} - \frac{32}{12} - \left(-\frac{17}{4}\right) \rightarrow \frac{11}{6}$$

$$\frac{7}{24} \cdot \frac{48}{56} - \frac{32}{12} - \left(-\frac{17}{4}\right) = \frac{7 \cdot 2 \cdot 3 \cdot 2 \cdot 2 \cdot 2}{2^3 \cdot 3 \cdot 7 \cdot 2^3} - \frac{2^2 \cdot 2^3}{2^2 \cdot 3} + \frac{17}{2^2} = \frac{1}{2^2} - \frac{2^3}{3} + \frac{17}{2^2} = \frac{1}{4} - \frac{8}{3} + \frac{17}{4} = \frac{3}{12} - \frac{32}{12} + \frac{51}{12} = \frac{54}{12} - \frac{32}{12} = \frac{22}{12} = \frac{11}{6}$$

$$\text{a) } \frac{24}{32} \cdot \frac{15}{9} - \frac{72}{27} - \left(-\frac{13}{6}\right) \rightarrow \frac{3}{4}$$

$$\text{f) } \frac{48}{25} : \frac{44}{77} - \frac{28}{20} - \left(+\frac{7}{5}\right) \rightarrow \frac{14}{25}$$

$$\text{b) } \frac{21}{33} \cdot \frac{44}{20} - \frac{35}{20} - \left(+\frac{7}{4}\right) \rightarrow -\frac{21}{10}$$

$$\text{g) } \frac{66}{44} : \frac{26}{39} - \frac{17}{68} - \left(+\frac{14}{16}\right) \rightarrow \frac{9}{8}$$

$$\text{c) } \frac{77}{10} \cdot \frac{24}{33} + \frac{14}{35} - \left(-\frac{1}{5}\right) \rightarrow \frac{31}{5}$$

$$\text{h) } \frac{45}{44} : \frac{81}{99} - \frac{21}{56} - \left(+\frac{7}{8}\right) \rightarrow 0$$

$$\text{d) } \frac{36}{44} \cdot \frac{55}{14} - \frac{15}{70} - \left(+\frac{3}{7}\right) \rightarrow \frac{18}{7}$$

$$\text{i) } \frac{48}{26} : \frac{64}{52} - \frac{21}{3} - \left(-\frac{14}{6}\right) \rightarrow -\frac{19}{6}$$

$$\text{e) } \frac{39}{55} \cdot \frac{99}{26} - \frac{45}{90} - \left(+\frac{5}{2}\right) \rightarrow -\frac{3}{10}$$

$$\text{j) } \frac{5}{6} - \frac{28}{12} : \frac{44}{33} - \frac{21}{30} \cdot \frac{20}{14} - \left(-\frac{14}{3}\right) \rightarrow \frac{11}{4}$$

$$\text{k) } \frac{5}{7} - \frac{25}{14} \cdot \frac{50}{22} - \frac{24}{28} \cdot \frac{30}{60} - \left(+\frac{3}{7}\right) \rightarrow -\frac{13}{14}$$

3. Ejercicios de potencias. OJO CON LA POTENCIA CUANDO EL EXPONENTE ES PAR, EL RESULTADO ES NEGATIVO.

$$\text{Ejemplo: } \frac{24}{32} - \left(-\frac{1}{2}\right)^2 - \frac{55}{77} : \frac{8}{35} + \frac{11}{8} \rightarrow -\frac{5}{4} \quad \boxed{=}$$

$$\frac{24}{32} - \left(-\frac{1}{2}\right)^2 - \frac{55}{77} : \frac{8}{35} + \frac{11}{8} = \frac{24}{32} - \left(+\frac{1}{4}\right) - \frac{55}{77} : \frac{8}{35} + \frac{11}{8} = \frac{2^2 \cdot 2 \cdot 3}{2^2 \cdot 2 \cdot 2^2} - \frac{1}{4} - \frac{5 \cdot 11}{11 \cdot 7} \cdot \frac{7 \cdot 5}{2^2 \cdot 2} + \frac{11}{8} = \frac{3}{4} - \frac{1}{4} - \frac{25}{8} + \frac{11}{8} = \frac{6}{8} - \frac{2}{8} - \frac{25}{8} + \frac{11}{8} = \frac{17}{8} - \frac{27}{8} = -\frac{10}{8} = -\frac{5}{4}$$

$$\text{Ejemplo: } \frac{56}{32} - \left(-\frac{1}{2}\right)^2 - \frac{36}{88} : \frac{2}{22} + \frac{21}{8} \rightarrow -\frac{3}{8}$$

$$\frac{56}{32} - \left(-\frac{1}{2}\right)^2 - \frac{36}{88} : \frac{2}{22} + \frac{21}{8} = \frac{56}{32} - \left(+\frac{1}{4}\right) - \frac{36}{88} : \frac{2}{22} + \frac{21}{8} = \frac{2^3 \cdot 7}{2^3 \cdot 2^2} - \frac{1}{4} - \frac{2^2 \cdot 3^2 \cdot 2 \cdot 11}{2^3 \cdot 11 \cdot 2} + \frac{3 \cdot 7}{2^3} = \frac{7}{4} - \frac{1}{4} - \frac{9}{2} + \frac{21}{8} = \frac{14}{8} - \frac{2}{8} - \frac{36}{8} + \frac{21}{8} = \frac{35}{8} - \frac{38}{8} = -\frac{3}{8}$$

$$\text{a) } \frac{16}{24} - \left(-\frac{1}{3}\right)^2 - \frac{22}{44} : \frac{9}{14} + \frac{11}{9} \rightarrow 1$$

$$\text{f) } \left(+\frac{1}{3}\right)^2 - \left(-\frac{5}{3}\right)^2 + \frac{4}{26} \cdot \frac{39}{12} - \frac{1}{3} \rightarrow -\frac{5}{2}$$

$$\text{b) } \frac{72}{45} - \left(-\frac{2}{5}\right)^2 - \frac{21}{42} : \frac{25}{12} - \frac{3}{5} \rightarrow \frac{3}{5}$$

$$\text{g) } \left(+\frac{2}{3}\right)^2 - \left(-\frac{1}{3}\right)^2 + \frac{8}{42} \cdot \frac{14}{12} - \frac{2}{3} \rightarrow -\frac{1}{9}$$

$$\text{c) } \frac{81}{18} - \left(-\frac{3}{2}\right)^2 - \frac{45}{88} : \frac{5}{44} + \frac{21}{8} \rightarrow \frac{3}{8}$$

$$\text{h) } \left(+\frac{6}{3}\right)^2 - \left(-\frac{5}{2}\right)^2 + \frac{24}{16} \cdot \frac{24}{12} - \frac{1}{4} \rightarrow \frac{1}{2}$$

$$\text{d) } \frac{51}{34} - \left(+\frac{1}{2}\right)^3 + \frac{33}{88} : \frac{22}{44} + \frac{3}{8} \rightarrow \frac{5}{2}$$

$$\text{i) } \left(1 - \frac{1}{3}\right)^2 - \left(1 - \frac{5}{3}\right)^2 - \left(\frac{2}{6} - \frac{1}{2}\right) + \frac{1}{3} \rightarrow \frac{1}{2}$$

$$\text{e) } \frac{26}{18} - \left(+\frac{1}{3}\right)^2 + \frac{56}{21} \cdot \frac{22}{16} - \frac{16}{3} \rightarrow -\frac{1}{3}$$

$$\text{j) } \left(1 - \frac{1}{5}\right)^2 - \left(1 - \frac{2}{5}\right)^2 + \left(\frac{2}{5} - 1\right) - \frac{1}{5} \rightarrow -\frac{13}{25}$$