# taller De Matematicas

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1. Calcular las siguientes Fracciones:

1. $\frac{9}{4}+\frac{3}{2}\cdot\frac{1}{3}=\frac{9}{4}+\frac{3}{6}=\frac{27}{12}+\frac{6}{12}=\frac{27+6}{12}=\frac{33}{12}=\frac{11}{4}$

2. $3+\frac{2}{9}+\frac{9}{16}\div\frac{3}{8}$

$3+\frac{2}{9}+\frac{\overset{3}{\cancel{9}}\times\overset{1}{\cancel{8}}}{\underset{2}{\cancel{16}}\times\underset{1}{\cancel{3}}}=3+\frac{2}{9}+\frac{3}{2}=\frac{(3\times18)+2\times2+9\times3}{18}$

$=\frac{54+4+27}{18}=\frac{82}{18}=\frac{41}{9}$

3. $\left(\frac{2}{9}+\frac{1}{2}\right)\times\left(\frac{5}{6}-\frac{3}{8}\right)$

$\left(\frac{4+9}{18}\right)\times\left(\frac{20-9}{24}\right)=\frac{13}{18}\times\frac{11}{24}=\frac{143}{432}$

4. $\left(3+\frac{2}{9}\right)-\left(\frac{9}{16}-\frac{3}{8}\right)+\left(\frac{1}{2}\div\frac{9}{16}-\frac{3}{8}\right)\times\left(\frac{5}{16}-\frac{3}{8}\right)$

$\left(\frac{(9\times3)+2}{9}\right)-\left(\frac{9}{16}-\frac{6}{16}\right)+\left(\frac{16}{8}-\frac{3}{8}\right)\times\left(\frac{5}{16}-\frac{6}{16}\right)$

$\frac{29}{9}-\frac{3}{16}+\left(\frac{8}{9}-\frac{3}{8}\right)\times\left(\frac{-1}{16}\right)$

$\frac{29}{9}-\frac{3}{16}+\left(\frac{64-27}{72}\right)\times\left(\frac{-1}{16}\right)$

$\frac{29}{9}-\frac{3}{16}+\frac{37}{72}\times\left(\frac{-1}{16}\right)=\frac{29}{9}-\frac{3}{16}-\frac{37}{1152}=\frac{3712-216-37}{1152}$

$=\frac{3459}{1152}=\frac{1153}{384}$

(5)

$$= \frac{\left(2+\frac{2}{5}\right)-\left(\frac{5}{6}-\frac{3}{8}\right)+\left(\frac{1}{2}\div\frac{3}{16}-\frac{3}{8}\right)\times\left(\frac{5}{3}-\frac{3}{8}\right)}{\left(\frac{2}{3}+\frac{1}{2}\right)\times\left(\frac{1}{6}-\frac{3}{8}\right)}$$

$$= \frac{\left(\frac{10+2}{5}\right)-\left(\frac{40-18}{48}\right)+\left(\frac{16}{6}-\frac{3}{8}\right)\times\left(\frac{40-9}{24}\right)}{\left(\frac{4+3}{6}\right)\times\left(\frac{8-18}{48}\right)}$$

$$= \frac{\frac{12}{5}-\left(\frac{22}{48}\right)+\left(\frac{64-9}{24}\right)\times\left(\frac{31}{24}\right)}{\left(\frac{7}{6}\right)\times\left(-\frac{10}{48}\right)}$$

$$\frac{\frac{12}{5}-\frac{11}{24}+\frac{55}{24}\times\frac{31}{24}}{\frac{-70}{288}} = \frac{\frac{12}{5}-\frac{11}{24}+\frac{1705}{576}}{\frac{-35}{144}}$$

$$= \frac{\frac{6912-1320+8525}{2880}}{\frac{-35}{144}} = \frac{\frac{14117}{2880}}{\frac{-35}{144}} = \frac{-2.032.848}{25.200} =$$

$$= -\frac{14.117}{175}$$

(6)

$$\frac{\left(3+\frac{2}{5}\right)-\left(\frac{5}{6}-\frac{3}{5}\right)+\left(\frac{1}{2}\times\frac{3}{16}-\frac{3}{8}\right)\div\left(\frac{5}{3}-\frac{3}{8}\right)}{\left(\frac{2}{3}+\frac{1}{2}\right)\div\left(\frac{1}{6}-\frac{3}{8}\right)}$$

$$\frac{\left(\frac{2}{3}+\frac{1}{2}\right)\times\left(\frac{1}{6}-\frac{3}{8}\right)\div\left(3+\frac{2}{9}\right)}{-\left(\frac{2}{9}+\frac{1}{2}\right)\div\left(\frac{5}{6}+\frac{3}{8}\right)}$$

$$\frac{\frac{17}{5}-\left(\frac{25-18}{30}\right)+\left(\frac{3}{32}-\frac{12}{32}\right)\div\left(\frac{40-9}{24}\right)}{\left(\frac{4+3}{6}\right)\div\left(\frac{8-24}{48}\right)}$$

$$=\frac{\left(\frac{4+3}{6}\right)\times\left(\frac{8-18}{48}\right)\div\left(\frac{27+2}{9}\right)}{-\left(\frac{4+9}{18}\right)\div\frac{29}{24}}$$

$$\frac{\frac{17}{5}-\frac{7}{30}+\left(\frac{9}{32}\right)\div\left(\frac{31}{24}\right)}{\frac{7}{6}\div\left(-\frac{16}{48}\right)}$$

$$=\frac{\frac{7}{6}\times\left(-\frac{10}{48}\right)\div\frac{29}{9}}{-\left(\frac{13}{18}\right)\div\frac{29}{24}}$$

$$\frac{\frac{17}{5}-\frac{7}{30}-\frac{216}{992}}{\frac{7}{6}\div\left(-\frac{1}{3}\right)}$$

$$\frac{\frac{7}{6}\times\left(-\frac{5}{24}\right)\div\frac{29}{9}}{-\left(\frac{312}{522}\right)=}$$

continue (6)

$$= \frac{\frac{50592 - 3472 - 3240}{14880}}{\frac{-\frac{21}{6}}{\frac{-35}{144} \div \frac{29}{9}}} - \frac{52}{\cancel{156}\ 87}$$

$$\frac{\frac{43880}{14880}}{\frac{-\frac{27}{6}}{\frac{-315}{4176}}} - \frac{52}{87}$$

$$\frac{\frac{4388}{1488}}{\frac{-\frac{27}{6}}{\frac{-315}{4176}}} - \frac{52}{87} = \frac{\frac{1097}{372}}{\frac{-\frac{9}{2}}{-105}} - \frac{52}{87}$$

$$= \frac{\frac{1097 \times 2}{-372 \times 9}}{\frac{-105}{1392}} - \frac{52}{87} = \frac{-\frac{2194}{3348}}{\frac{-35}{464}} - \frac{52}{87}$$

Continue 6.

$$= \frac{2194 \times 464}{3348 \times 35} - \frac{52}{87}$$

$$= \frac{1.018.416}{117.180} - \frac{52}{87}$$

$$= \frac{764.208}{58590} - \frac{52}{87}$$

$$= \frac{(764208 \times 87) - (52 \times 58590)}{(87)(58.590)}$$

$$= \frac{66.486.096 - 3.046.680}{5097330}$$

$$= \frac{63439416}{5.097330} = \frac{31.719.708}{2548.665} = \frac{10573.326}{849555}$$

(2)

$$\frac{1}{6}x + \frac{1}{8}x = 380$$

$$\frac{4x+3x}{24} = 380$$

$$7x = (380)(24)$$

$$x = \frac{9120}{7}$$

$$x = 1302,85$$

* 7018 x 1/8" $\Rightarrow$ $\frac{1}{6} \times 1302,85 = 217,14$

* 6010 x 1/8" $\Rightarrow$ $\frac{1}{8} \times 1302,85 = 162,86$

(3)

Peso total columnas.

$$\frac{7}{16} \times 8,5 = 3,71875 \text{ toneladas.}$$

Peso total columnas

$$\frac{9}{16} \times 8,5 = 4,78125 \text{ toneladas.}$$

* Peso de cada columna si hay 15

$$\frac{3,71875}{15} = 0,2324 \text{ toneladas.}$$

(3)

Peso de cada viga si hay 30

$$\frac{4,78125}{30} = 0,16 \text{ toneladas}$$