SOLUCIONES DE OPERACIONES CON FRACCIONES

1. Resuelve las siguientes operaciones.

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

$$=\left[\left(\frac{6-1}{9}\right)+13\left(\frac{2-3}{3}\right)^2\right]:\left[\left(\frac{1-2}{2}\right):\frac{2\cdot 2+1}{2}\right]=$$

$$=\left[\frac{5}{9}+13\left(\frac{-1}{3}\right)^2\right]:\left(-\frac{1}{2}:\frac{5}{2}\right)=$$

$$=\left(\frac{5}{9}+13\cdot\frac{1}{9}\right):\left(-\frac{1}{2}:\frac{5}{2}\right)=$$

$$=\left(\frac{5}{9}+\frac{13}{9}\right):\left(-\frac{2}{10}\right)=$$

$$=\frac{18}{9}:\left(-\frac{1}{5}\right)=2:\left(-\frac{1}{5}\right)=-\frac{10}{1}=-10$$

$$\left[\left(2-1\frac{3}{5}\right)^2+\left(\frac{5}{8}-\frac{3}{4}\right)-\left(\frac{6}{5}\cdot\frac{1}{3}\right)^4\cdot\left(7\frac{1}{2}\right)^3\right]:\left(5-\frac{6}{5}\right)=$$

$$=\left[\left(2-\frac{8}{5}\right)^2+\left(\frac{5}{8}-\frac{3}{4}\right)-\left(\frac{6}{15}\right)^4\cdot\left(\frac{15}{2}\right)^3\right]:\left(5-\frac{6}{5}\right)=$$

$$=\left[\left(\frac{2}{5}\right)^2+\frac{5}{8}-\frac{3}{4}-\left(\frac{2}{5}\right)^4\cdot\left(\frac{15}{2}\right)^3\right]:\frac{19}{5}=$$

$$=\left(\frac{4}{25}+\frac{5}{8}-\frac{3}{4}-\frac{54000}{5000}\right):\frac{19}{5}=$$

$$=\left(\frac{4}{25}+\frac{5}{8}-\frac{3}{4}-\frac{54}{5}\right):\frac{19}{5}=$$

$$=\frac{32+125-150-2160}{200}:\frac{19}{5}=$$

$$=\frac{-2153}{200}:\frac{19}{5}=-\frac{10765}{3800}=-\frac{2153}{760}$$

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

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

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

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

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

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

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

$$\frac{\left(\frac{2}{3}\right)^{5}\left(\frac{2}{3}\right)^{0}\left(\frac{2}{3}\right)^{-3}\left(\frac{81}{16}\right)^{-2}}{\left(\frac{3}{2}\right)^{-5}\left(\frac{2}{3}\right)\left[\left(\frac{2}{3}\right)^{5}\right]^{2}\left(\frac{8}{27}\right)^{3}} =$$

$$= \frac{\left(\frac{2}{3}\right)^{5}\left(\frac{2}{3}\right)^{0}\left(\frac{2}{3}\right)^{-3}\left[\left(\frac{3}{2}\right)^{4}\right]^{-2}}{\left(\frac{3}{2}\right)^{-5}\left(\frac{2}{3}\right)\left[\left(\frac{2}{3}\right)^{5}\right]^{2}\left[\left(\frac{2}{3}\right)^{3}\right]^{3}} =$$

$$= \frac{\left(\frac{2}{3}\right)^{5}\left(\frac{2}{3}\right)^{0}\left(\frac{2}{3}\right)^{-3}\left(\frac{3}{2}\right)^{-8}}{\left(\frac{3}{2}\right)^{-5}\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)^{10}\left(\frac{2}{3}\right)^{9}} =$$

$$= \frac{\left(\frac{2}{3}\right)^{5}\left(\frac{2}{3}\right)^{0}\left(\frac{2}{3}\right)^{-3}\left(\frac{2}{3}\right)^{8}}{\left(\frac{2}{3}\right)^{5}\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)^{10}\left(\frac{2}{3}\right)^{9}} =$$

$$= \frac{\left(\frac{2}{3}\right)^{10}}{\left(\frac{2}{3}\right)^{25}} = \left(\frac{2}{3}\right)^{-15} = \left(\frac{3}{2}\right)^{15}$$