LE OPERAZIONI CON LE FRAZIONI

Addizione e sottrazione

$\frac{3}{5} + \frac{7}{5} = \frac{10}{5} = 2$ (10 : 5 = 2)

$\frac{2}{7} + \frac{4}{7} = \frac{6}{7}$

$\frac{7}{2} + \frac{5}{2} = \frac{12}{2} = 6$ (12 : 2 = 6)

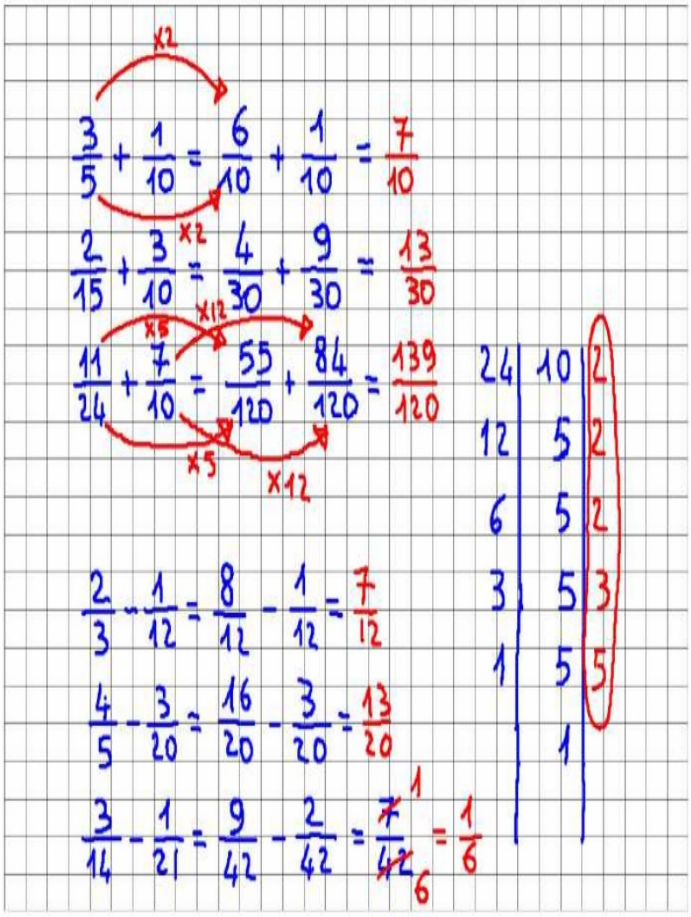
$\frac{9}{8} + \frac{7}{8} = \frac{16}{8} = 2$ (16 : 8 = 2)

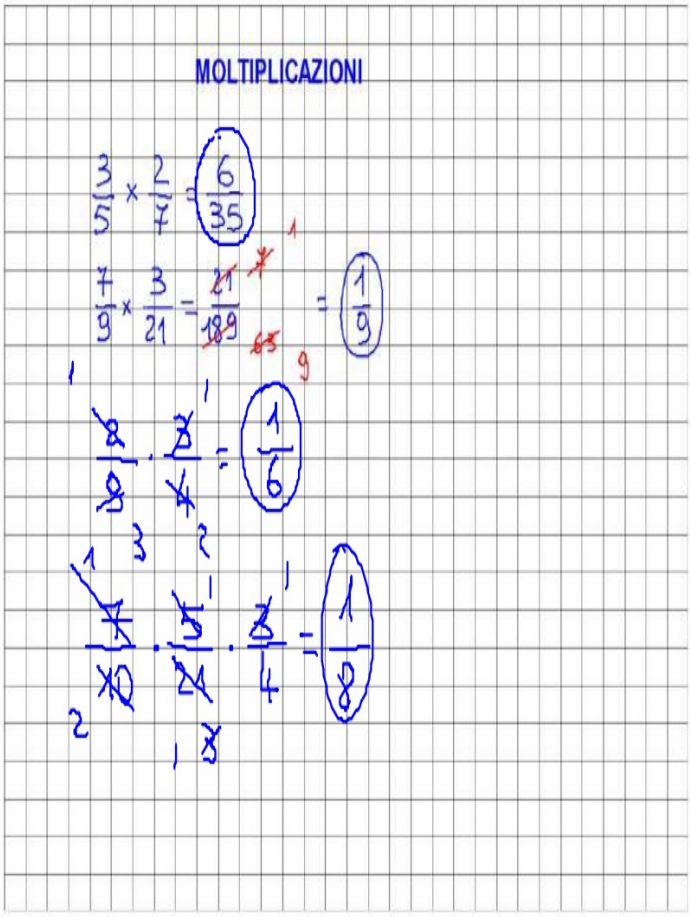
$\frac{12}{11} - \frac{3}{11} = \frac{9}{11}$

$\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

$\frac{25}{6} - \frac{12}{6} = \frac{13}{6}$

$\frac{19}{20} - \frac{3}{20} = \frac{16}{20} = \frac{4}{5}$ (16 : 4 = 20 : 4 = 5)


x2
3/5 + 1/10 = 6/10 + 1/10 = 7/10
2/15 + 3/10 = 4/30 + 9/30 = 13/30
x2
x5
x12
11/24 + 7/10 = 55/120 + 84/120 = 139/120
x5
x12
2/3 - 1/12 = 8/12 - 1/12 = 7/12
4/5 - 3/20 = 16/20 - 3/20 = 13/20
3/14 - 1/21 = 9/42 - 2/42 = 7/42 = 1/6
24 | 10 | 2
12 | 5 | 2
6 | 5 | 2
3 | 5 | 3
1 | 5 | 5
1


MOLTIPLICAZIONI

DIVISIONI

$\frac{3}{4} : \frac{9}{8} = \frac{\cancel{3}^{1}}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{\cancel{9}_{3}} = \frac{2}{3}$

$10 : \frac{1}{2} = 10 : 0{,}5 = 20$

$10 : \frac{1}{2} = 10 \times \frac{2}{1} = \frac{20}{1} = 20$

×10	×10
10	0,5
10	20

$30 : \frac{3}{4} = 30 : 0{,}75 = 40$

$30 : \frac{3}{4} = \overset{10}{30} \times \frac{4}{\cancel{5}_{1}} = \frac{40}{1} = 40$

×100	×100
3000	0,75
2250	
750	
750	40
0	

LA POTENZA DELLE FRAZIONI

$$\left(\frac{a}{b}\right)^n = \underbrace{\frac{a}{b}\cdot\frac{a}{b}\cdot\frac{a}{b}\cdot\ldots\cdot\frac{a}{b}}_{n \text{ VOLTE}} = \frac{a^n}{b^n}$$

$$\left(\frac{3}{2}\right)^3 = \frac{3}{2}\cdot\frac{3}{2}\cdot\frac{3}{2} = \frac{3^3}{2^3} = \frac{27}{8}$$

$$\left(\frac{2}{5}\right)^2 = \frac{2}{5}\cdot\frac{2}{5} = \frac{2^2}{5^2} = \frac{4}{25}$$

$$\left(\frac{1}{4}\right)^4 = \frac{1}{4}\cdot\frac{1}{4}\cdot\frac{1}{4}\cdot\frac{1}{4} = \frac{1^4}{4^4} = \frac{1}{256}$$

$$\left(\frac{2}{3}\right)^5 = \frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3} = \frac{2^5}{3^5} = \frac{32}{243}$$

Anche con le frazioni,
valgono le proprietà delle potenze:

$$\left(\frac{a}{b}\right)^n \cdot \left(\frac{a}{b}\right)^m : \left(\frac{a}{b}\right)^9 = \left(\frac{a}{b}\right)^{n+m-9}$$

$$\left(\frac{2}{3}\right)^3 \times \left(\frac{2}{3}\right)^4 : \left(\frac{2}{3}\right)^6 \times \frac{2}{3} = \left(\frac{2}{3}\right)^2 = \frac{4}{9}$$

$$\left(\frac{3}{5}\right)^7 \cdot \left(\frac{3}{5}\right)^3 : \left(\frac{3}{5}\right)^4 : \left(\frac{3}{5}\right)^5 \cdot \frac{3}{5} = \left(\frac{3}{5}\right)^0 = 1$$

POTENZA DI POTENZA

$$\left[\left(\frac{a}{b}\right)^{n}\right]^{m} = \left(\frac{a}{b}\right)^{n \cdot m}$$

$$\left[\left(\frac{3}{5}\right)^{2}\right]^{3} = \left(\frac{3}{5}\right)^{6}$$

$$\left[\left(\frac{1}{2}\right)^{4}\right]^{3} = \left(\frac{1}{2}\right)^{12}$$

$$\left[\left(\frac{5}{4}\right)^{8}\right]^{5} = \left(\frac{5}{4}\right)^{40}$$

$$\left[\left(\frac{2}{9}\right)^{7}\right]^{2} = \left(\frac{2}{9}\right)^{14}$$

PROPRIETÀ DISTRIBUTIVA DELLA POTENZA RISPETTO ALLA MOLTIPLICAZIONE

$$\left[\left(\frac{2}{3}\right)^5 \times \left(\frac{5}{2}\right)^5\right]^2 : \left[\left(\frac{5}{3}\right)^2 \times \left(\frac{5}{3}\right)^2\right]^2 =$$

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

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

$$= \left(\frac{5}{3}\right)^{10} : \left(\frac{5}{3}\right)^8 = \left(\frac{5}{3}\right)^2 = \frac{25}{9}$$