

ESERCIZI IN PIÙ

ESPRESSIONI CON I RAZIONALI

Calcola il valore delle seguenti espressioni.

$$1 \quad \left[\left(-\frac{1}{4} \right)^6 : \left(-\frac{1}{2} \right)^6 \right] : \left(\frac{1}{2} \right)^4 + \left(\frac{1}{2} \right)^2 \quad \left[\frac{1}{2} \right]$$

$$2 \quad \left(-\frac{2}{3} \right)^3 - \left(-\frac{2}{3} \right)^2 \cdot \left(-\frac{2}{3} \right)^4 : \left(-\frac{2}{3} \right)^3 + \left(-\frac{2}{3} \right)^0 \quad [1]$$

$$3 \quad \left[\left(1 + \frac{1}{2} \right)^3 \cdot \left(2 - \frac{1}{2} \right)^5 \right]^2 \cdot \left(\frac{3}{2} \right)^2 : \left[\left(-\frac{3}{2} \right)^8 \cdot \left(\frac{3}{2} \right)^7 \right] \quad \left[\frac{27}{8} \right]$$

$$4 \quad \left(-\frac{3}{5} \right)^8 : \left(1 - \frac{2}{5} \right)^5 \cdot \left[\left(2 + \frac{1}{2} \right)^2 \cdot \frac{5}{2} \right] - 1 \quad \left[\frac{19}{8} \right]$$

$$5 \quad \left(2 - \frac{14}{9} \right)^2 : \left(-\frac{2}{3} \right)^2 - \left(2 - \frac{5}{3} \right)^4 : \frac{1}{27} - \frac{2}{9} \quad \left[-\frac{1}{9} \right]$$

$$6 \quad \left[\left(\frac{2}{5} - \frac{1}{6} \right) \cdot \left(\frac{5}{7} - 5 \right) - 3 \right] \cdot \frac{2}{16} - \left(\frac{2}{3} + 1 \right) \cdot \left(2 - \frac{1}{5} \right) \quad \left[-\frac{7}{2} \right]$$

$$7 \quad \left(1 - \frac{1}{4} \right)^2 \cdot \left(\frac{2}{3} \right)^2 + \left[\left(\frac{7}{2} \right)^2 \cdot \left(-3 - \frac{1}{2} \right)^3 : \left(-1 - \frac{5}{2} \right)^4 + 1 \right] \quad \left[-\frac{9}{4} \right]$$

$$8 \quad \left[\left(\frac{2}{35} - \frac{1}{5} \right) : \left(\frac{1}{7} - 1 \right) \right] : \left[\frac{2}{3} : \left(\frac{1}{4} + \frac{3}{2} \right) \right] \cdot \left(-\frac{1}{10} \right)^0 - \left(-\frac{1}{2} \right)^4 \quad \left[\frac{3}{8} \right]$$

$$9 \quad \frac{2}{3} - \frac{1}{6} + \left[\frac{1}{2} - \frac{1}{3} - \left(1 + \frac{4}{5} \right) : \frac{1}{5} \right] - \left[\frac{1}{7} + \frac{2}{3} - \left(\frac{1}{14} + 1 \right) \right] \cdot \frac{7}{11} - (-2^3) \quad \left[-\frac{1}{6} \right]$$

$$10 \quad \left\{ \left[\left(3 - \frac{13}{11} \right) : \left(\frac{3}{2} - \frac{4}{11} \right) \right] - \frac{3}{5} \right\} \cdot \frac{8}{3} - \left[\frac{4}{3} : \frac{1}{3} - 4 + \frac{(-2)^4}{5} \right] \quad \left[-\frac{8}{15} \right]$$

$$11 \quad \left\{ \left[\left(\frac{4}{3} - \frac{1}{4} \right) \cdot \left(-\frac{2}{13} + 3 \right) - \frac{30}{12} \right] : \frac{7}{4} - \frac{2}{3} \right\} \cdot \frac{3}{5} - \frac{2}{5} + \frac{9^3}{36} : \frac{3^4}{4} \quad \left[\frac{2}{5} \right]$$

$$12 \quad \left\{ \left[\left(\frac{4}{9} - \frac{1}{3} \right)^2 - \left(\frac{3}{5} - \frac{1}{3} \right)^2 \cdot \left(\frac{5}{3} \right)^2 + \frac{1}{2} \right] : \left(-\frac{17}{27} + \frac{3}{4} \right)^2 - \left(\frac{1}{32} \right)^3 : \left(\frac{1}{128} \right)^2 + \frac{1}{2} \right\} \quad \left[\frac{1}{16} \right]$$

$$13 \quad \left\{ \left[-\left(\frac{1}{2} - \frac{1}{10} \right) + \left(\frac{1}{6} \right)^4 : \left(-\frac{1}{6} \right)^3 \right] : \left(\frac{17}{5} \right)^2 \right\} \cdot \left\{ \frac{1}{5} + \left(1 + \frac{1}{5} \right)^2 \cdot \left[\left(-\frac{3}{5} + \frac{1}{2} \right)^2 \cdot \left(\frac{5}{3} \right)^2 - 1 \right] \right\} \quad \left[\frac{1}{17} \right]$$

$$14 \quad \frac{\left(-\frac{1}{2} \right)^4 : \left(+\frac{1}{2} \right)^2 + \left[\left(\frac{23}{30} - \frac{13}{18} \right) \cdot \left(\frac{23}{15} - \frac{1}{30} \right) \right] : \frac{3}{2} - \frac{5}{4}}{\left[\frac{13}{12} - \left(\frac{7}{9} - \frac{1}{3} \right) + \frac{2}{9} \right] - \left(-\frac{7}{18} + \frac{1}{12} + \frac{5}{6} \right) - \frac{1}{3} + 1} \quad \left[-\frac{43}{45} \right]$$

$$15 \quad \frac{\left(\frac{8}{3} - 2 - \frac{2}{5} \right) \cdot \left(\frac{7}{2} - \frac{7}{3} + \frac{13}{12} \right) \cdot \frac{15}{2} - \left[\left(\frac{2}{3} - \frac{3}{5} \right) \cdot \left(1 + \frac{7}{2} - \frac{3}{4} \right) \right] \cdot \frac{15}{4}}{\left[\left(1 + \frac{1}{2} - \frac{3}{5} \right) - \left(-\frac{4}{5} + \frac{3}{4} + \frac{1}{2} \right) \right] \cdot \left(\frac{4}{3} - \frac{5}{9} \right)} \quad \left[\frac{285}{28} \right]$$

$$16 \quad 4 + \frac{\left(\frac{3}{4} + \frac{1}{3} : \frac{2}{5}\right) : \left(\frac{3}{5} + \frac{5}{3} - 1\right) + \frac{5}{9} + \frac{1}{3}}{\left(2 + \frac{1}{3}\right)\left(\frac{3}{4} - \frac{4}{7}\right)} + \frac{\frac{5}{9} + \frac{1}{3}}{\frac{4}{3} : \frac{5}{2}} - 8 + \frac{2}{3} \quad \left[\frac{4}{3}\right]$$

$$17 \quad \frac{2 - \left(-\frac{1}{64}\right) \cdot \left(8 + \frac{1}{3}\right)^2 \cdot \left(8 - \frac{1}{2}\right) \cdot \left(-1 - \frac{1}{5}\right)^3 \cdot \left(\frac{1}{3}\right)^2 \cdot \left(1 - \frac{1}{5}\right)^2 - \frac{1}{3}}{\left(\frac{3}{8} - \frac{1}{12} + \frac{5}{6}\right) + \left\{-\frac{5}{8} + \left[\frac{15}{4} + \left(-\frac{15}{28} - 2 - \frac{3}{4} + \frac{2}{7}\right)\right]\right\}} - \frac{3}{5} \quad \left[-\frac{1}{15}\right]$$

$$18 \quad \frac{\left[\left(\frac{1}{4} - \frac{9}{25} \cdot \frac{5}{18}\right)^2 : \left(1 + \frac{1}{2}\right)^2 - \left(\frac{1}{10}\right)^2\right] \cdot \left(\frac{7}{20} - 1\right) + 3 - \frac{1}{4} + \frac{2}{3}}{\left[\left(1 - \frac{1}{3} - \frac{1}{2}\right) \cdot 2 + \left(\frac{2}{3} - \frac{1}{2} + \frac{1}{6}\right) \cdot 3\right] : \frac{4}{3} + \frac{2}{3}} \quad \left[\frac{41}{20}\right]$$

$$19 \quad \frac{\frac{9}{2} \cdot \left(\frac{1}{6} - \frac{3}{12}\right) - \left[\frac{5}{6} \cdot \left(\frac{7}{5} - \frac{7}{20}\right) - \frac{1}{4} \cdot \left(\frac{8}{3} - 2 - \frac{1}{6}\right)\right] \cdot 2}{\left\{\left(2 + \frac{1}{4} + \frac{5}{12}\right)^2 : \left[\left(\frac{6}{5} - \frac{1}{3} - \frac{1}{5}\right)^4 : \left(1 - \frac{1}{3}\right)^2\right]\right\} \cdot \frac{15}{16}} \quad \left[-\frac{1}{8}\right]$$

$$20 \quad \frac{\left[\left(2 - \frac{1}{2}\right) + \left(-2 + \frac{1}{3}\right) + \left(4 - \frac{1}{6}\right) - 1\right] : 2^3 - \frac{4}{3}}{\left[\left[(-2)^2 + (-3)^3 - \left(\frac{12}{5}\right)^0\right] \cdot \left(-\frac{1}{5}\right)^2 - \frac{1}{25}\right] \cdot \frac{3}{4}} \quad \left[\frac{4}{3}\right]$$

$$21 \quad \frac{\left[\left(\frac{23}{30} - \frac{13}{18}\right) \cdot \left(\frac{23}{15} - \frac{1}{30}\right)\right] : \frac{3}{2} - 1}{\left[\frac{13}{12} - \left(\frac{7}{9} - \frac{1}{3}\right) + \frac{2}{9}\right] - \left(-\frac{7}{18} + \frac{1}{12} + \frac{5}{6}\right) - \frac{1}{3} + 1} \quad \left[-\frac{43}{45}\right]$$

$$22 \quad 4 + \frac{\left(\frac{3}{4} + \frac{1}{3} : \frac{2}{5}\right) : \left(\frac{3}{5} + \frac{5}{3} - 1\right) + \frac{5}{9} + \frac{1}{3}}{\left(2 + \frac{1}{3}\right)\left(\frac{3}{4} - \frac{4}{7}\right)} + \frac{\frac{5}{9} + \frac{1}{3}}{\frac{4}{3} : \frac{5}{2}} - 8 + \frac{2}{3} \quad \left[\frac{4}{3}\right]$$

$$23 \quad \frac{2 - \left(-\frac{1}{64}\right) \cdot \left(8 + \frac{1}{3}\right)^2 \cdot \left(8 - \frac{1}{2}\right) \cdot \left(-1 - \frac{1}{5}\right)^3 \cdot \left(\frac{1}{3}\right)^2 \cdot \left(1 - \frac{1}{5}\right)^2 - \frac{1}{3}}{\left(\frac{3}{8} - \frac{1}{12} + \frac{5}{6}\right) + \left\{-\frac{5}{8} + \left[\frac{15}{4} + \left(-\frac{15}{28} - 2 - \frac{3}{4} + \frac{2}{7}\right)\right]\right\}} - \frac{3}{5} \quad \left[-\frac{1}{15}\right]$$

$$24 \quad \frac{\left[\left(\frac{1}{4} - \frac{9}{25} \cdot \frac{5}{18}\right)^2 : \left(1 + \frac{1}{2}\right)^2 - \left(\frac{1}{10}\right)^2\right] \cdot \left(\frac{7}{20} - 1\right) + 3 - \frac{1}{4} + \frac{2}{3}}{\left[\left(1 - \frac{1}{3} - \frac{1}{2}\right) \cdot 2 + \left(\frac{2}{3} - \frac{1}{2} + \frac{1}{6}\right) \cdot 3\right] : \frac{4}{3} + \frac{2}{3}} \quad \left[\frac{41}{20}\right]$$

$$25 \quad \left\{\left[\left(\frac{1}{2} - \frac{1}{6}\right) + \left(\frac{1}{7}\right)^3 : \left(\frac{1}{7}\right)^2\right] \cdot \left(\frac{3}{2}\right)^2\right\} : \left\{\left[1 - \left(1 + \frac{3}{4}\right)^2 : \left(\frac{1}{8} + \frac{47}{16}\right)^2\right] - \frac{8}{49}\right\} \quad \left[\frac{21}{10}\right]$$

$$26 \quad \left\{ 1 + \left(\frac{1}{3} + \frac{1}{5} \right)^2 : \left[\left(1 - \frac{7}{15} \right)^4 \cdot \left(\frac{9}{8} + \frac{3}{4} \right)^3 \right] - \left(1 - \frac{3}{5} \right)^2 \cdot 5 \right\} \cdot \left[1 - \left(\frac{3}{2} \right)^4 : \left(\frac{3}{2} + \frac{5}{4} \right)^2 \cdot \left(2 - \frac{7}{9} \right) \right] \quad \left[\frac{2}{15} \right]$$

$$27 \quad \left\{ \left[1 + \left(1 - \frac{3}{5} \right)^2 \cdot \left(\frac{1}{3} + \frac{1}{2} \right) \cdot 5 \right] \cdot \left(\frac{5}{3} \right)^2 \cdot \left(\frac{1}{3} + \frac{4}{15} \right)^2 \right\} \cdot \left[1 + \left(\frac{1}{7} + \frac{2}{21} \right)^2 \cdot \left(\frac{21}{2} \right)^5 : \left(\frac{21}{2} \right)^3 \cdot \frac{2}{5} \right] \quad \left[\frac{35}{6} \right]$$

$$28 \quad \left[\left(\frac{1}{4} - \frac{1}{20} \right)^4 \cdot 5^3 + \left(\frac{7}{5} - \frac{11}{10} \right)^2 : \frac{3}{10} - \frac{1}{15} \right] : \left\{ \left(1 - \frac{2}{3} \right) + \left(\frac{1}{5} + \frac{17}{15} \right)^2 \cdot \left[\left(\frac{3}{2} + 1 \right)^2 \cdot \left(\frac{1}{4} + \frac{1}{20} \right)^2 - \frac{1}{4} \right] \right\} \quad \left[\frac{39}{80} \right]$$

$$29 \quad \left[\left(\frac{5}{4} + \frac{13}{12} \right) \cdot \left(\frac{21}{10} - \frac{21}{20} \right) \cdot \left(\frac{1}{3} + \frac{5}{21} \right) \cdot \frac{4}{7} \right] - \left\{ \left[1 + \left(\frac{1}{2} - \frac{1}{6} \right)^4 : \left(\frac{1}{5} + \frac{2}{15} \right)^2 : \left(\frac{1}{7} + \frac{4}{21} \right)^3 \right] \cdot \left(\frac{4}{15} + \frac{1}{6} + \frac{19}{60} \right)^3 \right\} \quad \left[-\frac{1}{5} \right]$$