

Bruchrechnen: Potenzen und Betrag

Berechne Potenzen und Beträge von Brüchen. Achte besonders auf Vorzeichen, Klammern und die Reihenfolge von Potenzieren, Betrag und Grundrechenarten. Vereinfache jedes Resultat vollständig.

Für Feedback und Anregungen bitte E-Mail an uebungsblaetter.ch@gmail.com.

Potenzen und Betrag

1) $\left(\frac{3}{5}\right)^3$

2) $-\left(\frac{2}{3}\right)^4$

3) $\left(-\frac{4}{7}\right)^2$

4) $\left|-\frac{7}{12} + \frac{1}{3}\right|$

5) $\left|\frac{5}{8} - \frac{11}{6}\right|$

6) $\left|-\frac{3}{4}\right|^2 - \frac{1}{8}$

7) $\left(\left|-\frac{3}{4}\right| + \frac{1}{2}\right)^2$

8) $\left|\left|-\frac{7}{6}\right| - \left|\frac{5}{8}\right|\right|$

9) $\left|\left|-\frac{5}{9} + \frac{1}{3}\right| - \frac{1}{2}\right|$

10) $\left(\left|-\frac{2}{3}\right| - \left|\frac{1}{4} - \frac{5}{6}\right|\right)^2$

11) $\left|\left(-\frac{3}{5}\right)^3 + \frac{4}{25}\right|$

12) $\left[\left|-\frac{7}{8}\right| + \left(-\frac{1}{2}\right)^3\right]^2$

$$13) \left| \left| \frac{3}{4} - \frac{5}{3} \right| - \left| -\frac{7}{6} + \frac{1}{2} \right| \right|$$

$$14) \left| \left(\frac{2}{3} \right)^2 - \left| -\frac{5}{6} \right| \right| + \left(\frac{1}{3} \right)^3$$

$$15) \left(\frac{\left| -\frac{4}{5} \right|}{\left| \frac{2}{3} - \frac{7}{6} \right|} \right)^2$$

$$16) \left| \left| \left| -\frac{3}{4} \right| - \frac{5}{6} \right| - \frac{1}{12} \right|$$

Lösungen

Potenzen und Betrag

$$17) \left(\frac{3}{5}\right)^3 = \boxed{\frac{27}{125}}$$

$$18) -\left(\frac{2}{3}\right)^4 = \boxed{-\frac{16}{81}}$$

$$19) \left(-\frac{4}{7}\right)^2 = \boxed{\frac{16}{49}}$$

$$20) \left|-\frac{7}{12} + \frac{1}{3}\right| = \left|-\frac{7}{12} + \frac{4}{12}\right| = \boxed{\frac{1}{4}}$$

$$21) \left|\frac{5}{8} - \frac{11}{6}\right| = \left|\frac{15}{24} - \frac{44}{24}\right| = \boxed{\frac{29}{24}}$$

$$22) \left|-\frac{3}{4}\right|^2 - \frac{1}{8} = \frac{9}{16} - \frac{2}{16} = \boxed{\frac{7}{16}}$$

$$23) \left(\left|-\frac{3}{4}\right| + \frac{1}{2}\right)^2 = \left(\frac{5}{4}\right)^2 = \boxed{\frac{25}{16}}$$

$$24) \left|\left|-\frac{7}{6}\right| - \left|\frac{5}{8}\right|\right| = \left|\frac{7}{6} - \frac{5}{8}\right| = \boxed{\frac{13}{24}}$$

$$25) \left|\left|-\frac{5}{9} + \frac{1}{3}\right| - \frac{1}{2}\right| = \left|\frac{2}{9} - \frac{1}{2}\right| = \boxed{\frac{5}{18}}$$

$$26) \left(\left|-\frac{2}{3}\right| - \left|\frac{1}{4} - \frac{5}{6}\right|\right)^2 = \left(\frac{2}{3} - \frac{7}{12}\right)^2 = \boxed{\frac{1}{144}}$$

$$27) \left|\left(-\frac{3}{5}\right)^3 + \frac{4}{25}\right| = \left|-\frac{27}{125} + \frac{20}{125}\right| = \boxed{\frac{7}{125}}$$

$$28) \left[\left|-\frac{7}{8}\right| + \left(-\frac{1}{2}\right)^3\right]^2 = \left(\frac{7}{8} - \frac{1}{8}\right)^2 = \boxed{\frac{9}{16}}$$

$$29) \left|\left|\frac{3}{4} - \frac{5}{3}\right| - \left|-\frac{7}{6} + \frac{1}{2}\right|\right| = \left|\frac{11}{12} - \frac{2}{3}\right| = \boxed{\frac{1}{4}}$$

$$30) \left| \left(\frac{2}{3} \right)^2 - \left| -\frac{5}{6} \right| \right| + \left(\frac{1}{3} \right)^3 = \frac{7}{18} + \frac{1}{27} = \boxed{\frac{23}{54}}$$

$$31) \left(\frac{\left| -\frac{4}{5} \right|}{\left| \frac{2}{3} - \frac{7}{6} \right|} \right)^2 = \left(\frac{4/5}{1/2} \right)^2 = \boxed{\frac{64}{25}}$$

$$32) \left| \left| -\frac{3}{4} \right| - \frac{5}{6} \right| - \frac{1}{12} = \left| \frac{1}{12} - \frac{1}{12} \right| = \boxed{0}$$