Berufskolleg für Technik des Märkischen Kreises 58509 Lüdenscheid	Grundlagen der Algebra (3)	01.09.2002	Ki

Machen Sie die Brüche gleichnamig und addieren/subtrahieren Sie!

1. $\frac{2}{3}+\frac{1}{9}=$

2. $\frac{7}{13}+\frac{5}{9}=$

3. $\frac{1}{3}+\frac{1}{6}+\frac{1}{8}=$

4. $\frac{1}{3}+\frac{3}{7}+\frac{5}{9}=$

5. $\frac{1}{3}+\frac{1}{4}+\frac{1}{5}=$

6. $\frac{1}{12}+\frac{4}{15}-\frac{7}{20}=$

7. $\frac{1}{2}+\frac{2}{3}-\left(\frac{1}{4}+\frac{3}{5}\right)=$

8. $\left(\frac{5}{6}-\frac{2}{15}\right)-\left(\frac{7}{10}-\frac{3}{5}\right)=$

9. $\frac{1}{a}+\frac{1}{b}=$

10. $\frac{3}{a}+\frac{5}{b}=$

11. $\frac{1}{a}+\frac{1}{ab}=$

12. $\frac{1}{a^2b}+\frac{2}{ab^2}=$

13. $\frac{1}{ab}+\frac{1}{ac}-\frac{1}{bc}=$

14. $\frac{5}{2a+4b}+\frac{4}{3a+6b}=$

15. $\frac{2m+n}{6m-9n}-\frac{3m-2n}{8m-12n}+\frac{m-3n}{2m-3n}=$

16. $\frac{1}{a^2+2ab+b^2}-\frac{1}{a^2-b^2}=$

17. $\frac{5}{x^2-2xy+y^2}-\frac{4}{3x^2-3y^2}=$

18. $\frac{a}{a^3-2a^2b+ab^2}-\frac{b}{a^2b-b^3}=$

Lösungen:

1. $\frac{2}{3}+\frac{1}{9}=\frac{6}{9}+\frac{1}{9}=\frac{7}{9}$

2. $\frac{7}{13}+\frac{5}{9}=\frac{63}{117}+\frac{65}{117}=\frac{128}{117}$

3. $\frac{1}{3}+\frac{1}{6}+\frac{1}{8}=\frac{8}{24}+\frac{4}{24}+\frac{3}{24}=\frac{15}{24}=\frac{5}{8}$

4. $\frac{1}{3}+\frac{3}{7}+\frac{5}{9}=\frac{21}{63}+\frac{27}{63}+\frac{35}{63}=\frac{83}{63}$

5. $\frac{1}{3}+\frac{1}{4}+\frac{1}{5}=\frac{20}{60}+\frac{15}{60}+\frac{12}{60}=\frac{47}{60}$

6. $\frac{1}{12}+\frac{4}{15}-\frac{7}{20}=\frac{5}{60}+\frac{16}{60}-\frac{21}{60}=\frac{0}{60}=0$

7. $\frac{1}{2}+\frac{2}{3}-\left(\frac{1}{4}+\frac{3}{5}\right)=\frac{30}{60}+\frac{40}{60}-\frac{15}{60}-\frac{36}{60}=\frac{19}{60}$

8. $\left(\frac{5}{6}-\frac{2}{15}\right)-\left(\frac{7}{10}-\frac{3}{5}\right)=\frac{25}{30}-\frac{4}{30}-\frac{21}{30}+\frac{18}{30}=\frac{18}{30}=\frac{3}{5}$

9. $\frac{1}{a}+\frac{1}{b}=\frac{b}{ab}+\frac{a}{ab}=\frac{a+b}{ab}$

10. $\frac{3}{a}+\frac{5}{b}=\frac{3b}{ab}+\frac{5a}{ab}=\frac{5a+3b}{ab}$

11. $\frac{1}{a}+\frac{1}{ab}=\frac{b}{ab}+\frac{1}{ab}=\frac{b+1}{ab}$

12. $\frac{1}{a^2b}+\frac{2}{ab^2}=\frac{b}{a^2b^2}+\frac{2a}{a^2b^2}=\frac{2a+b}{a^2b^2}$

13. $\frac{1}{ab}+\frac{1}{ac}-\frac{1}{bc}=\frac{c}{abc}+\frac{b}{abc}-\frac{a}{abc}=\frac{c+b-a}{abc}$

14. $\frac{5}{2a+4b}+\frac{4}{3a+6b}=\frac{15+8}{6a+12b}=\frac{23}{6a+12b}$

15. $\frac{2m+n}{6m-9n}-\frac{3m-2n}{8m-12n}+\frac{m-3n}{2m-3n}=\frac{8m+4n-9m+6n+12m-36n}{24m-36n}=\frac{11m-26n}{24m-36n}$

16. $\frac{1}{a^2+2ab+b^2}-\frac{1}{a^2-b^2}=\frac{a-b}{(a^2+2ab+b^2)(a-b)}-\frac{a+b}{(a^2-b^2)(a+b)}=\frac{-2b}{a^3+a^2b-ab^2-b^3}$

17. $\frac{5}{x^2-2xy+y^2}-\frac{4}{3x^2-3y^2}=\frac{15x+15y}{3(x+y)(x^2-2xy+y^2)}-\frac{4x-4y}{(x-y)(3x^2-3y^2)}=\frac{11x+19y}{3x^3-3x^2y-3xy^2+3y^3}$

18. $\frac{a}{a^3-2a^2b+ab^2}-\frac{b}{a^2b-b^3}=\frac{a^2b+ab^2}{(ab+b^2)(a^3-2a^2b+ab^2)}-\frac{a^2b-ab^2}{(a^2-ab)(a^2b-b^3)}=\frac{2ab^2}{a^4b-a^3b^2-a^2b^3+ab^4}$