

Optellen en aftrekken van breuken uitwerkingen

Als je breuken wilt optellen of aftrekken dan moet je ervoor zorgen dat de noemers gelijk zijn.

Voorbeeld:

$$\frac{1}{3} + \frac{2}{4} = \frac{1 \times 4}{3 \times 4} + \frac{2 \times 3}{4 \times 3} = \frac{4}{12} + \frac{6}{12} = \frac{10}{12} = \frac{5}{6}$$

In Bovenstaand voorbeeld staat aangegeven hoe je het kunt uitrekenen. De laatste stap is het vereenvoudigen, dit kan niet altijd maar als het kan moet je het wel doen. Dus denk daaraan.

Opgave 3.1

Bereken.

a) $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

d) $\frac{3}{12} + \frac{7}{12} = \frac{10}{12} = \frac{5}{6}$

b) $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

e) $\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$

c) $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$

f) $\frac{2}{32} + \frac{5}{32} = \frac{7}{32}$

Opgave 3.2

Bereken.

a) $\frac{1}{2} + \frac{1}{4} = \frac{1 \times 2}{2 \times 2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$

b) $\frac{1}{2} + \frac{1}{3} = \frac{1 \times 3}{2 \times 3} + \frac{1 \times 2}{3 \times 2} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

c) $\frac{1}{3} + \frac{1}{4} = \frac{1 \times 4}{3 \times 4} + \frac{1 \times 3}{4 \times 3} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$

d) $\frac{1}{5} + \frac{1}{4} = \frac{1 \times 4}{5 \times 4} + \frac{1 \times 5}{4 \times 5} = \frac{4}{20} + \frac{5}{20} = \frac{9}{20}$

e) $\frac{1}{4} + \frac{1}{6} = \frac{1 \times 6}{4 \times 6} + \frac{1 \times 4}{6 \times 4} = \frac{6}{24} + \frac{4}{24} = \frac{10}{24} = \frac{5}{12}$

f) $\frac{1}{2} + \frac{1}{5} = \frac{1 \times 5}{2 \times 5} + \frac{1 \times 2}{5 \times 2} = \frac{5}{10} + \frac{2}{10} = \frac{7}{10}$

g) $\frac{1}{5} + \frac{1}{6} = \frac{1 \times 6}{5 \times 6} + \frac{1 \times 5}{6 \times 5} = \frac{6}{30} + \frac{5}{30} = \frac{11}{30}$

h) $\frac{1}{3} + \frac{1}{7} = \frac{1 \times 7}{3 \times 7} + \frac{1 \times 3}{7 \times 3} = \frac{7}{21} + \frac{3}{21} = \frac{10}{21}$

Opgave 3.3

Bereken, en vereenvoudig als dat kan.

$$\text{a) } \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

$$\text{d) } \frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$$

$$\text{b) } \frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$

$$\text{e) } 2 - \frac{2}{3} = 1\frac{1}{3}$$

$$\text{c) } \frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$$

$$\text{f) } 2\frac{1}{3} - \frac{1}{3} = 2$$

Opgave 3.4

Bereken.

$$\text{a) } \frac{1}{2} - \frac{1}{4} = \frac{1 \times 2}{2 \times 2} - \frac{1}{4} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4}$$

$$\text{b) } \frac{1}{2} - \frac{1}{3} = \frac{1 \times 3}{2 \times 3} - \frac{1 \times 2}{3 \times 2} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$$

$$\text{c) } \frac{1}{3} - \frac{1}{5} = \frac{1 \times 5}{3 \times 5} - \frac{1 \times 3}{5 \times 3} = \frac{5}{15} - \frac{3}{15} = \frac{2}{15}$$

$$\text{d) } \frac{1}{3} - \frac{1}{4} = \frac{1 \times 4}{3 \times 4} - \frac{1 \times 3}{4 \times 3} = \frac{4}{12} - \frac{3}{12} = \frac{1}{12}$$

$$\text{e) } \frac{3}{4} - \frac{1}{3} = \frac{3 \times 3}{4 \times 3} - \frac{1 \times 4}{3 \times 4} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$$

$$\text{f) } \frac{2}{3} - \frac{1}{2} = \frac{2 \times 2}{3 \times 2} - \frac{1 \times 3}{2 \times 3} = \frac{4}{6} - \frac{3}{6} = \frac{1}{6}$$

$$\text{g) } \frac{2}{5} - \frac{1}{10} = \frac{2 \times 2}{5 \times 2} - \frac{1}{10} = \frac{4}{10} - \frac{1}{10} = \frac{3}{10}$$

$$\text{h) } \frac{1}{2} - \frac{2}{5} = \frac{1 \times 5}{2 \times 5} - \frac{2 \times 2}{5 \times 2} = \frac{5}{10} - \frac{4}{10} = \frac{1}{10}$$

Opgave 3.5

Bereken.

$$\text{a) } 2\frac{2}{5} - \frac{4}{5} = 1\frac{3}{5}$$

$$\text{b) } 1\frac{2}{3} + \frac{2}{3} = 2\frac{1}{3}$$

$$\text{c) } 1\frac{2}{7} - \frac{6}{7} = \frac{3}{7}$$

$$\text{d) } 1\frac{2}{5} - \frac{2}{3} = \frac{7}{5} - \frac{2}{3} = \frac{7 \times 3}{5 \times 3} - \frac{2 \times 5}{3 \times 5} = \frac{21}{15} - \frac{10}{15} = \frac{11}{15}$$

$$\text{e) } 1\frac{2}{3} - \frac{3}{4} = \frac{5}{3} - \frac{3}{4} = \frac{5 \times 4}{3 \times 4} - \frac{3 \times 3}{4 \times 3} = \frac{20}{12} - \frac{9}{12} = \frac{11}{12}$$

$$\text{f) } 3\frac{1}{3} - 2\frac{1}{2} = \frac{10}{3} - \frac{5}{2} = \frac{10 \times 2}{3 \times 2} - \frac{5 \times 3}{2 \times 3} = \frac{20}{6} - \frac{15}{6} = \frac{5}{6}$$

$$\text{g) } 10\frac{1}{10} - 3\frac{4}{7} = \frac{101}{10} - \frac{25}{7} = \frac{101 \times 7}{10 \times 7} - \frac{25 \times 10}{7 \times 10} = \frac{707}{70} - \frac{250}{70} = \frac{457}{70} = 6\frac{37}{70}$$

$$\text{h) } 4\frac{2}{7} - 1\frac{2}{5} = \frac{30}{7} - \frac{7}{5} = \frac{30 \times 5}{7 \times 5} - \frac{7 \times 7}{5 \times 7} = \frac{150}{35} - \frac{49}{35} = \frac{101}{35} = 2\frac{31}{35}$$

Opgave 3.6

Bereken.

$$\text{a) } 2\frac{3}{4} - 2\frac{1}{2} = \frac{11}{4} - \frac{5}{2} = \frac{11}{4} - \frac{5 \times 2}{2 \times 2} = \frac{11}{4} - \frac{10}{4} = \frac{1}{4}$$

$$\text{b) } 4\frac{2}{5} - 2\frac{5}{6} = \frac{22}{5} - \frac{17}{6} = \frac{22 \times 6}{5 \times 6} - \frac{17 \times 5}{6 \times 5} = \frac{132}{30} - \frac{85}{30} = \frac{47}{30} = 1\frac{17}{30}$$

$$\text{c) } 7\frac{1}{8} - 3\frac{5}{6} = \frac{57}{8} - \frac{23}{6} = \frac{57 \times 6}{8 \times 6} - \frac{23 \times 8}{6 \times 8} = \frac{342}{48} - \frac{184}{48} = \frac{158}{48} = 3\frac{14}{48} = 3\frac{7}{24}$$

$$\text{d) } 3 - 1\frac{2}{5} = 1\frac{3}{5}$$

$$\text{e) } 4\frac{2}{7} - \frac{9}{11} = \frac{30}{7} - \frac{9}{11} = \frac{30 \times 11}{7 \times 11} - \frac{9 \times 7}{11 \times 7} = \frac{330}{77} - \frac{63}{77} = \frac{267}{77} = 3\frac{36}{77}$$

$$\text{f) } 7\frac{3}{4} - 1\frac{4}{5} = \frac{31}{4} - \frac{9}{5} = \frac{31 \times 5}{4 \times 5} - \frac{9 \times 4}{5 \times 4} = \frac{155}{20} - \frac{36}{20} = \frac{119}{20} = 5\frac{19}{20}$$

$$\text{g) } 3\frac{1}{3} - 2\frac{7}{8} = \frac{10}{3} - \frac{23}{8} = \frac{10 \times 8}{3 \times 8} - \frac{23 \times 3}{8 \times 3} = \frac{80}{24} - \frac{69}{24} = \frac{11}{24}$$

$$\text{h) } 5\frac{3}{4} - 1\frac{3}{8} = \frac{23}{4} - \frac{11}{8} = \frac{23 \times 2}{4 \times 2} - \frac{11}{8} = \frac{46}{8} - \frac{11}{8} = \frac{35}{8} = 4\frac{3}{8}$$