

## ADDITION UND SUBTRAKTION

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1 a)  $\frac{2}{9} + \frac{5}{9}$       b)  $\frac{3}{8} + \frac{5}{8}$       c)  $\frac{16}{21} - \frac{4}{21}$

2 a)  $\frac{2}{3} + \frac{5}{9}$       b)  $\frac{4}{9} + \frac{5}{18}$       c)  $\frac{1}{6} + \frac{1}{18}$

3 a)  $\frac{19}{24} - \frac{3}{8}$       b)  $\frac{31}{72} - \frac{5}{12}$       c)  $\frac{16}{25} - \frac{2}{5}$

4 a)  $\frac{5}{6} + \frac{3}{7}$       b)  $\frac{3}{4} - \frac{4}{9}$       c)  $\frac{2}{3} + \frac{3}{11}$

5 a)  $\frac{7}{9} + \frac{1}{2}$       b)  $\frac{3}{4} + \frac{2}{5}$       c)  $\frac{11}{12} - \frac{4}{7}$

6 a)  $\frac{7}{12} + \frac{5}{18}$       b)  $\frac{20}{21} - \frac{4}{15}$       c)  $\frac{7}{15} - \frac{3}{20}$

7 a)  $\frac{7}{12} - \frac{7}{16}$       b)  $\frac{11}{18} + \frac{7}{24}$       c)  $\frac{21}{25} + \frac{9}{20}$

8 a)  $\frac{7}{8} - \frac{3}{10}$       b)  $\frac{7}{15} - \frac{3}{20}$       c)  $\frac{20}{21} - \frac{4}{15}$

9 a)  $\frac{13}{15} + \frac{5}{18}$       b)  $\frac{15}{16} - \frac{7}{24}$       c)  $\frac{5}{6} - \frac{4}{15}$

10 a)  $3\frac{2}{5} + 2\frac{1}{5}$       b)  $3\frac{3}{7} + 2\frac{2}{7}$       c)  $3\frac{3}{4} - \frac{5}{12}$

11 a)  $12\frac{5}{6} + \frac{4}{6}$       b)  $7\frac{1}{5} - \frac{4}{5}$       c)  $9\frac{1}{3} - 5\frac{2}{3}$

$$1 \quad a) \quad \frac{2}{9} + \frac{5}{9} = \frac{7}{9}$$

$$b) \quad \frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$$

$$c) \quad \frac{16}{21} - \frac{4}{21} = \frac{12}{21} = \frac{4}{7}$$

$$2 \quad a) \quad \frac{2}{3} + \frac{5}{9} = \frac{2}{3} \cdot \frac{3}{3} + \frac{5}{9} = \frac{6+5}{9} = \frac{11}{9}$$

$$b) \quad \frac{4}{9} + \frac{5}{18} = \frac{4}{9} \cdot \frac{2}{2} + \frac{5}{18} = \frac{8+5}{18} = \frac{13}{18}$$

$$c) \quad \frac{1}{6} + \frac{1}{18} = \frac{1}{6} \cdot \frac{3}{3} + \frac{1}{18} = \frac{3+1}{18} = \frac{4}{18} = \frac{2}{9}$$

$$3 \quad a) \quad \frac{19}{24} - \frac{3}{8} = \frac{19}{24} - \frac{3}{8} \cdot \frac{3}{3} = \frac{19-9}{24} = \frac{10}{24} = \frac{5}{12}$$

$$b) \quad \frac{31}{72} - \frac{5}{12} = \frac{31}{72} - \frac{5}{12} \cdot \frac{6}{6} = \frac{31-30}{72} = \frac{1}{72}$$

$$c) \quad \frac{16}{25} - \frac{2}{5} = \frac{16}{25} - \frac{2}{5} \cdot \frac{5}{5} = \frac{16-10}{25} = \frac{6}{25}$$

$$4 \quad a) \quad \frac{5}{6} + \frac{3}{7} = \frac{5}{6} \cdot \frac{7}{7} + \frac{3}{7} \cdot \frac{6}{6} = \frac{35+18}{42} = \frac{53}{42}$$

$$b) \quad \frac{3}{4} - \frac{4}{9} = \frac{3}{4} \cdot \frac{9}{9} - \frac{4}{9} \cdot \frac{4}{4} = \frac{27-16}{36} = \frac{11}{36}$$

$$c) \quad \frac{2}{3} + \frac{3}{11} = \frac{2}{3} \cdot \frac{11}{11} + \frac{3}{11} \cdot \frac{3}{3} = \frac{22+9}{33} = \frac{31}{33}$$

$$5 \quad a) \quad \frac{7}{9} + \frac{1}{2} = \frac{7}{9} \cdot \frac{2}{2} + \frac{1}{2} \cdot \frac{9}{9} = \frac{14+9}{18} = \frac{23}{18}$$

$$b) \quad \frac{3}{4} + \frac{2}{5} = \frac{3}{4} \cdot \frac{5}{5} + \frac{2}{5} \cdot \frac{4}{4} = \frac{15+8}{20} = \frac{23}{20}$$

$$c) \quad \frac{11}{12} - \frac{4}{7} = \frac{11}{12} \cdot \frac{7}{7} - \frac{4}{7} \cdot \frac{12}{12} = \frac{77-48}{84} = \frac{29}{84}$$

$$6 \quad a) \quad \frac{7}{12} + \frac{5}{18} = \frac{7}{12} \cdot \frac{3}{3} + \frac{5}{18} \cdot \frac{2}{2} = \frac{21+10}{36} = \frac{31}{36}$$

$$b) \quad \frac{20}{21} - \frac{4}{15} = \frac{20}{21} \cdot \frac{5}{5} - \frac{4}{15} \cdot \frac{7}{7} = \frac{100-28}{105} = \frac{72}{105} = \frac{24}{35} \quad \left. \begin{array}{l} 21 = 7 \cdot 3 \\ 15 = 3 \cdot 5 \end{array} \right\} \Rightarrow 7 \cdot 3 \cdot 5 = 105$$

$$c) \quad \frac{7}{15} - \frac{3}{20} = \frac{7}{15} \cdot \frac{4}{4} - \frac{3}{20} \cdot \frac{3}{3} = \frac{28-9}{60} = \frac{19}{60}$$

$$7 \quad a) \quad \frac{7}{12} - \frac{7}{16} = \frac{7}{12} \cdot \frac{4}{4} - \frac{7}{16} \cdot \frac{3}{3} = \frac{28-21}{48} = \frac{7}{48}$$

$$b) \quad \frac{11}{18} + \frac{7}{24} = \frac{11}{18} \cdot \frac{4}{4} + \frac{7}{24} \cdot \frac{3}{3} = \frac{44+21}{72} = \frac{65}{72}$$

$$\left. \begin{array}{l} 18 = 3 \cdot 6 \\ 24 = 6 \cdot 4 \end{array} \right\} \Rightarrow 3 \cdot 6 \cdot 4 = 72$$

$$c) \quad \frac{21}{25} + \frac{9}{20} = \frac{21}{25} \cdot \frac{4}{4} + \frac{9}{20} \cdot \frac{5}{5} = \frac{84+45}{100} = \frac{129}{100}$$

$$8 \quad a) \quad \frac{7}{8} - \frac{3}{10} = \frac{7}{8} \cdot \frac{5}{5} - \frac{3}{10} \cdot \frac{4}{4} = \frac{35-12}{40} = \frac{23}{40}$$

$$b) \quad \frac{7}{15} - \frac{3}{20} = \frac{7}{15} \cdot \frac{4}{4} - \frac{3}{20} \cdot \frac{3}{3} = \frac{28-9}{60} = \frac{19}{60}$$

$$c) \quad \frac{20}{21} - \frac{4}{15} = \frac{20}{21} \cdot \frac{5}{5} - \frac{4}{15} \cdot \frac{7}{7} = \frac{100-28}{105} = \frac{72}{105} = \frac{24}{35}$$

$$9 \quad a) \quad \frac{13}{15} + \frac{5}{18} = \frac{13}{15} \cdot \frac{6}{6} + \frac{5}{18} \cdot \frac{5}{5} = \frac{78+25}{90} = \frac{103}{90}$$

$$\left. \begin{array}{l} 15 = 5 \cdot 3 \\ 18 = 3 \cdot 6 \end{array} \right\} \Rightarrow 5 \cdot 3 \cdot 6 = 90$$

$$b) \quad \frac{15}{16} - \frac{7}{24} = \frac{15}{16} \cdot \frac{3}{3} - \frac{7}{24} \cdot \frac{2}{2} = \frac{45-14}{48} = \frac{31}{48}$$

$$\left. \begin{array}{l} 16 = 2 \cdot 8 \\ 24 = 8 \cdot 3 \end{array} \right\} \Rightarrow 2 \cdot 8 \cdot 3 = 48$$

$$c) \quad \frac{5}{6} - \frac{4}{15} = \frac{5}{6} \cdot \frac{5}{5} - \frac{4}{15} \cdot \frac{2}{2} = \frac{25-8}{30} = \frac{17}{30}$$

$$10 \quad a) \quad 3\frac{2}{5} + 2\frac{1}{5} = 5\frac{3}{5}$$

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

$$c) \quad 3\frac{3}{4} - \frac{5}{12} = 3\frac{9}{12} - \frac{5}{12} = 3\frac{4}{12} = 3\frac{1}{3}$$

$$11 \quad a) \quad 12\frac{5}{6} + \frac{4}{6} = 12\frac{9}{6} = 13\frac{3}{6} = 13\frac{1}{2}$$

$$b) \quad 7\frac{1}{5} - \frac{4}{5} = \frac{36}{5} - \frac{4}{5} = \frac{32}{5}$$

$$c) \quad 9\frac{1}{3} - 5\frac{2}{3} = 9\frac{1}{3} - 5\frac{1}{3} - \frac{1}{3} = 4 - \frac{1}{3} = 3\frac{2}{3}$$