Aufgabe 14

a)

$$2\frac{1}{4} + 5\frac{1}{4} = 7\frac{2}{4} = 7\frac{1}{2}$$

Alternative 1:

$$2\frac{1}{4} + 5\frac{1}{4} = 2 + 5 + \frac{1}{4} + \frac{1}{4} = 7 + \frac{2}{4} = 7\frac{2}{4} = 7\frac{1}{2}$$

Alternative 2:

$$2\frac{1}{4} + 5\frac{1}{4} = \frac{9}{4} + \frac{21}{4} = \frac{30}{4} = 7\frac{2}{4} = 7\frac{1}{2}$$

b)

$$5\frac{5}{8} - 2\frac{1}{2} = 5\frac{5}{8} - 2\frac{4}{8} = 3\frac{1}{8}$$

Alternative 1:

$$5\frac{5}{8} - 2\frac{1}{2} = 5 - 2 + \frac{5}{8} - \frac{4}{8} = 3 + \frac{1}{8} = 3\frac{1}{8}$$

Alternative 2:

$$5\frac{5}{8} - 2\frac{1}{2} = \frac{45}{8} - \frac{5}{2} = \frac{45}{8} - \frac{20}{8} = \frac{25}{8} = 3\frac{1}{8}$$

c)

$$4\frac{2}{3} + 2\frac{3}{5} = 4\frac{10}{15} + 2\frac{9}{15} = 6\frac{19}{15} = 7\frac{4}{15}$$

Alternative 1:

$$4\frac{2}{3} + 2\frac{3}{5} = 4 + 2 + \frac{2}{3} + \frac{3}{5} = 6 + \frac{10}{15} + \frac{9}{15} = 6 + \frac{19}{15} = 6 + 1\frac{4}{15} = 7\frac{4}{15}$$

Alternative 2:

$$4\frac{2}{3} + 2\frac{3}{5} = \frac{14}{3} + \frac{13}{5} = \frac{70}{15} + \frac{39}{15} = \frac{109}{15} = 7\frac{4}{15}$$

d)

$$5\frac{7}{10} - 2\frac{1}{4} = 5\frac{14}{20} - 2\frac{5}{20} = 3\frac{9}{20}$$

Alternative 1:

$$5\frac{7}{10} - 2\frac{1}{4} = 5 - 2 + \frac{7}{10} - \frac{1}{4} = 3 + \frac{14}{20} - \frac{5}{20} = 3 + \frac{9}{20} = 3\frac{9}{20}$$

Alternative 2:

$$5\frac{7}{10} - 2\frac{1}{4} = \frac{57}{10} - \frac{9}{4} = \frac{114}{20} - \frac{45}{20} = \frac{69}{20} = 3\frac{9}{20}$$

e)

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

Alternative 1:

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

Alternative 2:

$$3\frac{1}{6} + 2\frac{3}{4} = \frac{19}{6} + \frac{11}{4} = \frac{38}{12} + \frac{33}{12} = \frac{71}{12} = 5\frac{11}{12}$$

f)

$$12\frac{3}{5} + 8\frac{7}{8} = 12\frac{24}{40} + 8\frac{35}{40} = 20\frac{59}{40} = 21\frac{19}{40}$$

Alternative 1:

$$12\frac{3}{5} + 8\frac{7}{8} = 12 + 8 + \frac{3}{5} + \frac{7}{8} = 20 + \frac{24}{40} + \frac{35}{40}$$

$$= 20 + \frac{59}{40} = 20 + 1\frac{19}{40} = 21\frac{19}{40}$$

Alternative 2:

$$12\frac{3}{5} + 8\frac{7}{8} = \frac{63}{5} + \frac{71}{8} = \frac{504}{40} + \frac{355}{40} = \frac{859}{40} = 21\frac{19}{40}$$

g)

$$7\frac{7}{10} - 6\frac{3}{5} = 7\frac{7}{10} - 6\frac{6}{10} = 1\frac{1}{10}$$

Alternative 1:

$$7\frac{7}{10} - 6\frac{3}{5} = 7 - 6 + \frac{7}{10} - \frac{3}{5} = 1 + \frac{7}{10} - \frac{6}{10} = 1 + \frac{1}{10} = 1\frac{1}{10}$$

Alternative 2:

$$7\frac{7}{10} - 6\frac{3}{5} = \frac{77}{10} - \frac{33}{5} = \frac{77}{10} - \frac{66}{10} = \frac{11}{10} = 1\frac{1}{10}$$

h)

$$9\frac{7}{9} - 6\frac{1}{2} = 9\frac{14}{18} - 6\frac{9}{18} = 3\frac{5}{18}$$

Alternative 1:

$$9\frac{7}{9} - 6\frac{1}{2} = 9 - 6 + \frac{7}{9} - \frac{1}{2} = 3 + \frac{14}{18} - \frac{9}{18} = 3 + \frac{5}{18} = 3\frac{5}{18}$$

Alternative 2:

$$9\frac{7}{9} - 6\frac{1}{2} = \frac{88}{9} - \frac{13}{2} = \frac{176}{18} - \frac{117}{18} = \frac{59}{18} = 3\frac{5}{18}$$

i)

$$3\frac{3}{4} + 7\frac{3}{4} = 10\frac{6}{4} = 11\frac{2}{4} = 11\frac{1}{2}$$

Alternative 1:

$$3\frac{3}{4} + 7\frac{3}{4} = 3 + 7 + \frac{3}{4} + \frac{3}{4} = 10 + \frac{6}{4} = 10 + \frac{3}{2} = 10 + 1\frac{1}{2} = 11\frac{1}{2}$$

Alternative 2:

$$3\frac{3}{4} + 7\frac{3}{4} = \frac{15}{4} + \frac{31}{4} = \frac{46}{4} = \frac{23}{2} = 11\frac{1}{2}$$

j)

$$5\frac{1}{8} - 2\frac{1}{3} = 5\frac{3}{24} - 2\frac{8}{24} = 4\frac{27}{24} - 2\frac{8}{24} = 2\frac{19}{24}$$

Alternative 1:

$$5\frac{1}{8} - 2\frac{1}{3} = 5 - 2 + \frac{1}{8} - \frac{1}{3} = 3 + \frac{1}{8} - \frac{1}{3}$$
$$= 2 + 1\frac{1}{8} - \frac{1}{3} = 2 + \frac{9}{8} - \frac{1}{3}$$
$$= 2 + \frac{27}{24} - \frac{8}{24} = 2 + \frac{19}{24} = 2\frac{19}{24}$$

Alternative 2:

$$5\frac{1}{8} - 2\frac{1}{3} = \frac{41}{8} - \frac{7}{3} = \frac{123}{24} - \frac{56}{24} = \frac{67}{24} = 2\frac{19}{24}$$

k)

$$3\frac{3}{5} + 6\frac{9}{10} = 3\frac{6}{10} + 6\frac{9}{10} = 9\frac{15}{10} = 10\frac{5}{10} = 10\frac{1}{2}$$

Alternative 1:

$$3\frac{3}{5} + 6\frac{9}{10} = 3 + 6 + \frac{3}{5} + \frac{9}{10} = 9 + \frac{6}{10} + \frac{9}{10}$$
$$= 9 + \frac{15}{10} = 9 + \frac{3}{2} = 9 + 1\frac{1}{2} = 10\frac{1}{2}$$

Alternative 2:

$$3\frac{3}{5} + 6\frac{9}{10} = \frac{18}{5} + \frac{69}{10} = \frac{36}{10} + \frac{69}{10} = \frac{105}{10} = 10\frac{5}{10} = 10\frac{1}{2}$$

l)

$$5\frac{21}{25} + 2\frac{3}{4} = 5\frac{84}{100} + 2\frac{75}{100} = 7\frac{159}{100} = 8\frac{59}{100}$$

Alternative 1:

$$5\frac{21}{25} + 2\frac{3}{4} = 5 + 2 + \frac{21}{25} + \frac{3}{4} = 7 + \frac{84}{25} + \frac{75}{100}$$
$$= 7 + \frac{159}{100} = 7 + 1\frac{59}{100} = 8\frac{59}{100}$$

Alternative 2:

$$5\frac{21}{25} + 2\frac{3}{4} = \frac{146}{25} + \frac{11}{4} = \frac{584}{100} + \frac{275}{100} = \frac{859}{100} = 8\frac{59}{100}$$

m)

$$6\frac{11}{15} + 2\frac{5}{6} = 6\frac{22}{30} + 2\frac{25}{30} = 8\frac{47}{30} = 9\frac{17}{30}$$

Alternative 1:

$$6\frac{11}{15} + 2\frac{5}{6} = 6 + 2 + \frac{11}{15} + \frac{5}{6} = 8 + \frac{22}{30} + \frac{25}{30}$$
$$= 8 + \frac{47}{30} = 8 + 1\frac{17}{30} = 9\frac{17}{30}$$

Alternative 2:

$$6\frac{11}{15} + 2\frac{5}{6} = \frac{101}{15} + \frac{17}{6} = \frac{202}{30} + \frac{85}{30} = \frac{287}{30} = 9\frac{17}{30}$$

n)

$$3\frac{17}{20} + 5\frac{17}{25} = 3\frac{85}{100} + 5\frac{68}{100} = 8\frac{153}{100} = 9\frac{53}{100}$$

Alternative 1:

$$3\frac{17}{20} + 5\frac{17}{25} = 3 + 5 + \frac{17}{20} + \frac{17}{25} = 8 + \frac{85}{100} + \frac{68}{100}$$
$$= 8 + \frac{153}{100} = 8 + 1\frac{53}{100} = 9\frac{53}{100}$$

Alternative 2:

$$3\frac{17}{20} + 5\frac{17}{25} = \frac{77}{20} + \frac{142}{25} = \frac{385}{100} + \frac{568}{100} = \frac{953}{100} = 9\frac{53}{100}$$

o)

$$3\frac{9}{10} - 2\frac{41}{100} = 3\frac{90}{100} - 2\frac{41}{100} = 1\frac{49}{100}$$

Alternative 1:

$$3\frac{9}{10} - 2\frac{41}{100} = 3 - 2 + \frac{9}{10} - \frac{41}{100} = 1 + \frac{90}{100} - \frac{41}{100}$$

$$= 1 + \frac{49}{100} = 1\frac{49}{100}$$

Alternative 2:

$$3\frac{9}{10} - 2\frac{41}{100} = \frac{39}{10} - \frac{241}{100} = \frac{390}{100} - \frac{241}{100} = \frac{149}{100} = 1\frac{49}{100}$$