

Solutions:

1. 1.5	2. 4	3. 5	4. 7	5. 36	6. 21	7. 12	8. 20	9. 8	10. 8	11. 3
12. 24	13. 40	14. 15	15. 18	16. 12	17. 3	18. 7	19. 9	20. 36	21. 6	
22. 35	23. 15	24. 16	25. 5	26. 5	27. 3	28. 8	29. 12	30. 6		
B. 1. 4	2. 2	3. 3	4. 3	5. 1	6. 3	7. 3	8. 1	9. 3	10. 6	11. 6
12. 1	13. 10	14. 5	15. 12	16. 12	17. 1	18. 1	19. 1	20. 1	21. 1	22. 1
23. 1	24. 1	25. 1	26. 1	27. 1	28. 1	29. 1	30. 1	31. 1	32. 1	33. 1
34. 1	35. 1	36. 1	37. 1	38. 1	39. 1	40. 1	41. 1	42. 1	43. 1	44. 1
45. 1	46. 1	47. 1	48. 1	49. 1	50. 1	51. 1	52. 1	53. 1	54. 1	55. 1
56. 1	57. 1	58. 1	59. 1	60. 1						

Adding and Subtracting Fractions

1) Use equivalent fractions to give each the same common denominator (bottom).

2) Add or subtract the numerators (top) only

3) Change to a mixed fraction if the numerator is larger than the denominator ie $\frac{3}{2} = 1\frac{1}{2}$.

4) Simplify final answer where possible.

examples:

$$1) \frac{4}{5} + \frac{3}{10} \rightarrow \frac{4 \times 2}{5 \times 2} = \frac{8}{10}$$

$$\text{Therefore } \frac{8}{10} + \frac{3}{10} = \frac{11}{10}$$

$$2) \frac{2}{3} - \frac{4}{9} \rightarrow \frac{2 \times 3}{3 \times 3} = \frac{6}{9}$$

$$\text{Therefore } \frac{6}{9} - \frac{4}{9} = \frac{2}{9}$$

Multiplying Fractions

1) Write any whole number as a fraction and 1 as $\frac{3}{3}$

2) Multiply out the two numerators

3) Multiply out the two denominators

4) Simplify if necessary.

examples:

$$1) \frac{3}{4} \times \frac{1}{8} = \frac{3 \times 1}{4 \times 8} = \frac{3}{32}$$

$$2) \frac{2}{5} \times \frac{3}{7} = \frac{2 \times 3}{5 \times 7} = \frac{6}{35}$$

$$3) \frac{5}{6} \div \frac{2}{3} = \frac{5}{6} \times \frac{3}{2} = \frac{15}{12} = 1\frac{1}{4}$$

$$4) \frac{1}{2} \div \frac{3}{4} = \frac{1}{2} \times \frac{4}{3} = \frac{4}{6} = \frac{2}{3}$$

$$5) \frac{3}{4} \div \frac{1}{8} = \frac{3}{4} \times \frac{8}{1} = \frac{24}{4} = 6$$

$$6) \frac{1}{2} \div \frac{1}{2} = \frac{1}{2} \times \frac{2}{1} = \frac{2}{2} = 1$$

4. Simplify:

$$(a) \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$(b) \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$(c) \frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

$$(d) \frac{4}{5} \times \frac{5}{6} = \frac{20}{30} = \frac{2}{3}$$

$$(e) \frac{5}{6} \times \frac{6}{7} = \frac{30}{42} = \frac{5}{7}$$

$$(f) \frac{6}{7} \times \frac{7}{8} = \frac{42}{56} = \frac{3}{4}$$

$$(g) \frac{7}{8} \times \frac{8}{9} = \frac{56}{72} = \frac{7}{9}$$

$$(h) \frac{8}{9} \times \frac{9}{10} = \frac{72}{90} = \frac{4}{5}$$

$$(i) \frac{9}{10} \times \frac{10}{11} = \frac{90}{110} = \frac{9}{11}$$

$$(j) \frac{10}{11} \times \frac{11}{12} = \frac{110}{132} = \frac{5}{6}$$

$$(k) \frac{11}{12} \times \frac{12}{13} = \frac{132}{156} = \frac{11}{13}$$

5. Simplify:

$$(a) \frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$$

$$(b) \frac{2}{3} \div \frac{3}{4} = \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$$

$$(c) \frac{3}{4} \div \frac{4}{5} = \frac{3}{4} \times \frac{5}{4} = \frac{15}{16}$$

$$(d) \frac{4}{5} \div \frac{5}{6} = \frac{4}{5} \times \frac{6}{5} = \frac{24}{25}$$

$$(e) \frac{5}{6} \div \frac{6}{7} = \frac{5}{6} \times \frac{7}{6} = \frac{35}{36}$$

$$(f) \frac{6}{7} \div \frac{7}{8} = \frac{6}{7} \times \frac{8}{7} = \frac{48}{49}$$

$$(g) \frac{7}{8} \div \frac{8}{9} = \frac{7}{8} \times \frac{9}{8} = \frac{63}{64}$$

$$(h) \frac{8}{9} \div \frac{9}{10} = \frac{8}{9} \times \frac{10}{9} = \frac{80}{81}$$

$$(i) \frac{9}{10} \div \frac{10}{11} = \frac{9}{10} \times \frac{11}{10} = \frac{99}{100}$$

$$(j) \frac{10}{11} \div \frac{11}{12} = \frac{10}{11} \times \frac{12}{11} = \frac{120}{121}$$

$$(k) \frac{11}{12} \div \frac{12}{13} = \frac{11}{12} \times \frac{13}{12} = \frac{143}{144}$$

6. Give the answer in simplest form:

$$(a) \frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$$

$$(b) \frac{2}{3} - \frac{1}{4} = \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$$

$$(c) \frac{3}{4} - \frac{1}{5} = \frac{15}{20} - \frac{4}{20} = \frac{11}{20}$$

$$(d) \frac{4}{5} - \frac{1}{6} = \frac{24}{30} - \frac{5}{30} = \frac{19}{30}$$

$$(e) \frac{5}{6} - \frac{1}{7} = \frac{35}{42} - \frac{6}{42} = \frac{29}{42}$$

$$(f) \frac{6}{7} - \frac{1}{8} = \frac{48}{56} - \frac{7}{56} = \frac{41}{56}$$

$$(g) \frac{7}{8} - \frac{1}{9} = \frac{63}{72} - \frac{8}{72} = \frac{55}{72}$$

$$(h) \frac{8}{9} - \frac{1}{10} = \frac{80}{90} - \frac{9}{90} = \frac{71}{90}$$

$$(i) \frac{9}{10} - \frac{1}{11} = \frac{99}{110} - \frac{10}{110} = \frac{89}{110}$$

$$(j) \frac{10}{11} - \frac{1}{12} = \frac{120}{132} - \frac{11}{132} = \frac{109}{132}$$

$$(k) \frac{11}{12} - \frac{1}{13} = \frac{143}{156} - \frac{12}{156} = \frac{131}{156}$$

7. Simplify:

$$(a) \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$(b) \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$(c) \frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

$$(d) \frac{4}{5} \times \frac{5}{6} = \frac{20}{30} = \frac{2}{3}$$

$$(e) \frac{5}{6} \times \frac{6}{7} = \frac{30}{42} = \frac{5}{7}$$

$$(f) \frac{6}{7} \times \frac{7}{8} = \frac{42}{56} = \frac{3}{4}$$

$$(g) \frac{7}{8} \times \frac{8}{9} = \frac{56}{72} = \frac{7}{9}$$

$$(h) \frac{8}{9} \times \frac{9}{10} = \frac{72}{90} = \frac{4}{5}$$

$$(i) \frac{9}{10} \times \frac{10}{11} = \frac{90}{110} = \frac{9}{11}$$

$$(j) \frac{10}{11} \times \frac{11}{12} = \frac{110}{132} = \frac{5}{6}$$

$$(k) \frac{11}{12} \times \frac{12}{13} = \frac{132}{156} = \frac{11}{13}$$

8. Simplify:

$$(a) \frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$$

$$(b) \frac{2}{3} \div \frac{3}{4} = \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$$

$$(c) \frac{3}{4} \div \frac{4}{5} = \frac{3}{4} \times \frac{5}{4} = \frac{15}{16}$$

$$(d) \frac{4}{5} \div \frac{5}{6} = \frac{4}{5} \times \frac{6}{5} = \frac{24}{25}$$

$$(e) \frac{5}{6} \div \frac{6}{7} = \frac{5}{6} \times \frac{7}{6} = \frac{35}{36}$$

$$(f) \frac{6}{7} \div \frac{7}{8} = \frac{6}{7} \times \frac{8}{7} = \frac{48}{49}$$

$$(g) \frac{7}{8} \div \frac{8}{9} = \frac{7}{8} \times \frac{9}{8} = \frac{63}{64}$$

$$(h) \frac{8}{9} \div \frac{9}{10} = \frac{8}{9} \times \frac{10}{9} = \frac{80}{81}$$

$$(i) \frac{9}{10} \div \frac{10}{11} = \frac{9}{10} \times \frac{11}{10} = \frac{99}{100}$$

$$(j) \frac{10}{11} \div \frac{11}{12} = \frac{10}{11} \times \frac{12}{11} = \frac{120}{121}$$

$$(k) \frac{11}{12} \div \frac{12}{13} = \frac{11}{12} \times \frac{13}{12} = \frac{143}{144}$$

9. Simplify:

$$(a) \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$(b) \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$(c) \frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

$$(d) \frac{4}{5} \times \frac{5}{6} = \frac{20}{30} = \frac{2}{3}$$

$$(e) \frac{5}{6} \times \frac{6}{7} = \frac{30}{42} = \frac{5}{7}$$

$$(f) \frac{6}{7} \times \frac{7}{8} = \frac{42}{56} = \frac{3}{4}$$

$$(g) \frac{7}{8} \times \frac{8}{9} = \frac{56}{72} = \frac{7}{9}$$

$$(h) \frac{8}{9} \times \frac{9}{10} = \frac{72}{90} = \frac{4}{5}$$

$$(i) \frac{9}{10} \times \frac{10}{11} = \frac{90}{110} = \frac{9}{11}$$

$$(j) \frac{10}{11} \times \frac{11}{12} = \frac{110}{132} = \frac{5}{6}$$

$$(k) \frac{11}{12} \times \frac{12}{13} = \frac{132}{156} = \frac{11}{13}$$

10. Simplify:

$$(a) \frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$$

$$(b) \frac{2}{3} \div \frac{3}{4} = \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$$

$$(c) \frac{3}{4} \div \frac{4}{5} = \frac{3}{4} \times \frac{5}{4} = \frac{15}{16}$$

$$(d) \frac{4}{5} \div \frac{5}{6} = \frac{4}{5} \times \frac{6}{5} = \frac{24}{25}$$

$$(e) \frac{5}{6} \div \frac{6}{7} = \frac{5}{6} \times \frac{7}{6} = \frac{35}{36}$$

$$(f) \frac{6}{7} \div \frac{7}{8} = \frac{6}{7} \times \frac{8}{7} = \frac{48}{49}$$

$$(g) \frac{7}{8} \div \frac{8}{9} = \frac{7}{8} \times \frac{9}{8} = \frac{63}{64}$$

$$(h) \frac{8}{9} \div \frac{9}{10} = \frac{8}{9} \times \frac{10}{9} = \frac{80}{81}$$

$$(i) \frac{9}{10} \div \frac{10}{11} = \frac{9}{10} \times \frac{11}{10} = \frac{99}{100}$$

$$(j) \frac{10}{11} \div \frac{11}{12} = \frac{10}{11} \times \frac{12}{11} = \frac{120}{121}$$

$$(k) \frac{11}{12} \div \frac{12}{13} = \frac{11}{12} \times \frac{13}{12} = \frac{143}{144}$$

11. Simplify:

$$(a) \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$(b) \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$(c) \frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

$$(d) \frac{4}{5} \times \frac{5}{6} = \frac{20}{30} = \frac{2}{3}$$

$$(e) \frac{5}{6} \times \frac{6}{7} = \frac{30}{42} = \frac{5}{7}$$

$$(f) \frac{6}{7} \times \frac{7}{8} = \frac{42}{56} = \frac{3}{4}$$

$$(g) \frac{7}{8} \times \frac{8}{9} = \frac{56}{72} = \frac{7}{9}$$

$$(h) \frac{8}{9} \times \frac{9}{10} = \frac{72}{90} = \frac{4}{5}$$

$$(i) \frac{9}{10} \times \frac{10}{11} = \frac{90}{110} = \frac{9}{11}$$

$$(j) \frac{10}{11} \times \frac{11}{12} = \frac{110}{132} = \frac{5}{6}$$

$$(k) \frac{11}{12} \times \frac{12}{13} = \frac{132}{156} = \frac{11}{13}$$

12. Simplify:

$$(a) \frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$$

$$(b) \frac{2}{3} \div \frac{3}{4} = \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$$

$$(c) \frac{3}{4} \div \frac{4}{5} = \frac{3}{4} \times \frac{5}{4} = \frac{15}{16}$$

$$(d) \frac{4}{5} \div \frac{5}{6} = \frac{4}{5} \times \frac{6}{5} = \frac{24}{25}$$

$$(e) \frac{5}{6} \div \frac{6}{7} = \frac{5}{6} \times \frac{7}{6} = \frac{35}{36}$$

$$(f) \frac{6}{7} \div \frac{7}{8} = \frac{6}{7} \times \frac{8}{7} = \frac{48}{49}$$

$$(g) \frac{7}{8} \div \frac{8}{9} = \frac{7}{8} \times \frac{9}{8} = \frac{63}{64}$$

$$(h) \frac{8}{9} \div \frac{9}{10} = \frac{8}{9} \times \frac{10}{9} = \frac{80}{81}$$

$$(i) \frac{9}{10} \div \frac{10}{11} = \frac{9}{10} \times \frac{11}{10} = \frac{99}{100}$$

$$(j) \frac{10}{11} \div \frac{11}{12} = \frac{10}{11} \times \frac{12}{11} = \frac{120}{121}$$

$$(k) \frac{11}{12} \div \frac{12}{13} = \frac{11}{12} \times \frac{13}{12} = \frac{143}{144}$$

13. Simplify:

$$(a) \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$(b) \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$(c) \frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

$$(d) \frac{4}{5} \times \frac{5}{6} = \frac{20}{30} = \frac{2}{3}$$

$$(e) \frac{5}{6} \times \frac{6}{7} = \frac{30}{42} = \frac{5}{7}$$

$$(f) \frac{6}{7} \times \frac{7}{8} = \frac{42}{56} = \frac{3}{4}$$

$$(g) \frac{7}{8} \times \frac{8}{9} = \frac{56}{72} = \frac{7}{9}$$

$$(h) \frac{8}{9} \times \frac{9}{10} = \frac{72}{90} = \frac{4}{5}$$

$$(i) \frac{9}{10} \times \frac{10}{11} = \frac{90}{110} = \frac{9}{11}$$

$$(j) \frac{10}{11} \times \frac{11}{12} = \frac{110}{132} = \frac{5}{6}$$

$$(k) \frac{11}{12} \times \frac{12}{13} = \frac{132}{156} = \frac{11}{13}$$

14. Simplify:

$$(a) \frac{1$$

2 Simplify.

$$a \frac{1}{2} + \frac{1}{5} \times \frac{1}{2}$$

$$e \left(\frac{1}{2} + \frac{1}{3}\right) \div 5$$

$$i \frac{1}{5} + \frac{4}{5} \times 3$$

$$m 6 \times \frac{1}{4} + \frac{1}{2} \times \frac{1}{2}$$

$$b \frac{7}{10} - \frac{1}{5} \times \frac{1}{2}$$

$$f \frac{1}{2} + \frac{1}{3} \div 4$$

$$j \left(\frac{3}{4} + \frac{1}{8}\right) \times \frac{1}{3}$$

$$n 2 \div \frac{1}{2} \times \frac{1}{4}$$

$$c \frac{4}{9} \times \frac{9}{12} + \frac{1}{5}$$

$$g 2 \times \frac{1}{3} + \frac{2}{3}$$

$$k 12 \times \left(\frac{1}{2} + \frac{1}{4}\right)$$

$$o 1\frac{1}{5} \div 2 + 3$$

$$d 2 \times \frac{1}{3} + \frac{1}{3}$$

$$h \left(\frac{1}{4} + 2\right) \times \frac{1}{3}$$

$$l 7 \div \left(1\frac{5}{7} + \frac{2}{7}\right)$$

$$p (14 - \frac{2}{3}) \times \frac{1}{4}$$

Example

Simplify $\frac{2}{5} + \frac{3}{4} + \frac{3}{5}$.

$$\begin{aligned} \frac{2}{5} + \frac{3}{4} + \frac{3}{5} &= \frac{2}{5} + \frac{3}{5} + \frac{3}{4} \\ &= \frac{5}{5} + \frac{3}{4} \\ &= 1 + \frac{3}{4} \\ &= 1\frac{3}{4} \end{aligned}$$

Questions can often be answered quickly by rearranging the numbers—but only additions (and multiplications) can be done in any order.



3 Simplify:

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

$$e \frac{1}{2} \div \frac{1}{3} \times 4$$

$$i \frac{2}{3} \times \frac{1}{2} + \frac{1}{4}$$

$$m \frac{1}{2} \times 10 + 10 \times \frac{1}{5}$$

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

$$f \frac{1}{8} + \frac{3}{2} \times \frac{1}{2}$$

$$j \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6}$$

$$n 10 \div \frac{1}{2} + \frac{1}{2}$$

$$c \frac{1}{2} + \frac{1}{3} \times 6$$

$$g (1\frac{1}{2} + \frac{1}{4}) \times 2$$

$$k (2 - \frac{1}{5}) \times \frac{2}{3}$$

$$o 6 \div \frac{1}{2} + \frac{1}{3} \div \frac{1}{4}$$

$$d 2 + \frac{1}{3} \times \frac{1}{5}$$

$$h 3 \div \frac{1}{5} \times \frac{1}{2}$$

$$l 3 \times \frac{1}{8} + 2 \times \frac{1}{4}$$

$$p \frac{3}{5} + \frac{2}{5} + \frac{1}{8} \times 8$$

4 Simplify:

$$a \frac{7}{10} + \frac{4}{5} + \frac{3}{10}$$

$$e \frac{3}{8} \times 1 \times \frac{4}{9}$$

$$i \frac{5}{7} \times \frac{5}{8} \times 1\frac{2}{5}$$

$$m \frac{1}{2} \times 2\frac{1}{4} \times 2$$

$$q 4 + \frac{1}{4} \times 3$$

$$u \frac{1}{8} + 2\frac{1}{3} + \frac{7}{8}$$

$$b \frac{2}{3} \times 0 \times \frac{7}{11}$$

$$f \frac{5}{6} \times 1\frac{3}{4} \times 0$$

$$j 6\frac{1}{2} + \frac{1}{3} + \frac{2}{3}$$

$$n 6 \div \frac{1}{2} \div 2$$

$$r 5 \div \frac{5}{8} + \frac{3}{8}$$

$$v 18 \div \frac{1}{5} \times \frac{2}{3}$$

$$c 8 \times \frac{3}{13} \times \frac{1}{8}$$

$$g 1\frac{3}{10} + 5\frac{4}{5} + \frac{7}{10}$$

$$k \frac{4}{5} + \frac{2}{3} - \frac{4}{5}$$

$$o \frac{5}{8} \div 3 \times 6$$

$$s 3 - \frac{1}{5} \times \frac{5}{8}$$

$$w \frac{3}{8} + \frac{1}{5} \times 2 + \frac{1}{5}$$

$$d \frac{4}{5} + 3\frac{1}{2} + \frac{1}{5}$$

$$h \frac{1}{4} + \frac{9}{10} + 1\frac{3}{4}$$

$$l \frac{3}{4} \times 2\frac{1}{4} \div \frac{3}{4}$$

$$p \frac{2}{3} \times \frac{5}{8} \times 1\frac{1}{2}$$

$$t \frac{4}{3} \div \frac{1}{2} \times 4$$

$$x \frac{9}{10} + \frac{5}{8} \times 2 - \frac{1}{8}$$

5 Simplify:

$$a \frac{1}{2} \times \frac{2}{5} + \frac{3}{8} \times \frac{8}{15}$$

$$d 1\frac{1}{2} \div \frac{2}{3} \div \frac{1}{8} \div 2$$

$$g 2 \times \frac{1}{4} \div \frac{1}{2} + \frac{1}{2}$$

$$j 6\frac{1}{2} + (\frac{1}{2} + \frac{1}{4}) + 3$$

$$m \frac{3}{5} \div \frac{1}{2} \times \frac{1}{4} \div \frac{1}{8}$$

$$b 5 \times (\frac{3}{5} - \frac{2}{5}) \times 2$$

$$e \frac{2}{3} \times \frac{1}{8} \times \frac{2}{3} \times 0$$

$$h \frac{1}{8} + \frac{2}{3} \times \frac{1}{5} + \frac{7}{8}$$

$$k \frac{2}{3} \times (1 - \frac{1}{3}) - \frac{1}{5}$$

$$n \frac{2}{3} \times \frac{3}{5} + (2 - \frac{3}{5})$$

$$c \frac{3}{8} \times 3 - \frac{1}{8} + \frac{2}{3}$$

$$f (2 \times 6\frac{1}{4} + \frac{3}{4}) + \frac{1}{4}$$

$$i 6\frac{1}{4} \div \frac{5}{8} \div \frac{1}{2} + 1$$

$$l 3 \times (\frac{1}{2} + \frac{7}{8} - \frac{1}{4})$$

$$o 123 \div \frac{1}{2} \div 2 \div 123$$

2	a	$\frac{5}{3}$	b	$\frac{3}{5}$	c	$\frac{8}{15}$	d	1	
e	$\frac{1}{6}$	f	$\frac{7}{12}$	g	$\frac{1}{13}$	h	$\frac{3}{4}$	i	$\frac{3}{2}$
i	$\frac{2}{5}$	j	$\frac{7}{24}$	k	9	l	$\frac{3}{2}$	m	$\frac{1}{3}$
m	$\frac{1}{3}$	n	1	o	$\frac{3}{5}$	p	$\frac{3}{3}$	q	$\frac{1}{2}$
a	$\frac{5}{6}$	b	$\frac{1}{5}$	c	$\frac{2}{2}$	d	$\frac{2}{15}$	e	$\frac{1}{15}$
e	6	f	$\frac{7}{8}$	g	$\frac{3}{2}$	h	$\frac{7}{2}$	i	$\frac{1}{8}$
i	$\frac{7}{12}$	j	$\frac{1}{3}$	k	$\frac{1}{5}$	l	$\frac{7}{8}$	m	$\frac{1}{2}$
m	7	n	$20\frac{1}{2}$	o	$13\frac{1}{3}$	p	2	q	$\frac{4}{2}$
a	$\frac{4}{15}$	b	0	c	$\frac{3}{13}$	d	$\frac{4}{2}$	e	$\frac{9}{10}$
e	$\frac{1}{6}$	f	0	g	$\frac{7}{5}$	h	$\frac{2}{10}$	i	$\frac{2}{4}$
i	$\frac{5}{8}$	j	$7\frac{1}{2}$	k	$\frac{2}{3}$	l	$\frac{2}{4}$	m	$\frac{1}{5}$
m	$\frac{2}{4}$	n	6	o	$\frac{1}{4}$	p	$\frac{5}{8}$	q	$\frac{10}{3}$
q	$\frac{4}{4}$	r	$\frac{8}{8}$	s	$\frac{2}{7}$	t	$\frac{1}{10}$	u	$\frac{1}{40}$
u	$\frac{3}{5}$	v	60	w	$\frac{39}{40}$	x	$\frac{2}{40}$	y	0
a	$\frac{2}{5}$	b	2	c	$\frac{1}{3}$	d	9	e	0
f	$\frac{13}{12}$	g	$\frac{1}{2}$	h	$\frac{1}{5}$	i	21	j	$\frac{1}{4}$
k	$\frac{11}{45}$	l	$\frac{3}{8}$	m	$\frac{2}{5}$	n	$\frac{1}{5}$	o	1