

Red

Example: $\frac{1}{4} + \frac{2}{3}$

Step 1 - Multiply the denominators

$$\boxed{4} \times \boxed{3} = \boxed{12}$$

Step 2 - Find equivalent fractions

$$\frac{1}{4} = \frac{\boxed{3}}{\boxed{12}} \quad \frac{2}{3} = \frac{\boxed{8}}{\boxed{12}}$$

Step 3 - Add fractions and simplify if you can

$$\frac{\boxed{3}}{\boxed{12}} + \frac{\boxed{8}}{\boxed{12}} = \frac{\boxed{11}}{\boxed{12}}$$

1) $\frac{1}{2} + \frac{3}{7}$

Step 1

$$\boxed{2} \times \boxed{7} = \boxed{14}$$

Step 2

$$\frac{1}{2} = \frac{\boxed{7}}{\boxed{14}} \quad \frac{3}{7} = \frac{\boxed{6}}{\boxed{14}}$$

$$\frac{\boxed{7}}{\boxed{14}} + \frac{\boxed{6}}{\boxed{14}} = \frac{\boxed{13}}{\boxed{14}}$$

2) $\frac{1}{5} + \frac{2}{3}$

Step 1

$$\boxed{5} \times \boxed{3} = \boxed{15}$$

Step 2

$$\frac{1}{5} = \frac{\boxed{3}}{\boxed{15}} \quad \frac{2}{3} = \frac{\boxed{10}}{\boxed{15}}$$

$$\frac{\boxed{3}}{\boxed{15}} + \frac{\boxed{10}}{\boxed{15}} = \frac{\boxed{13}}{\boxed{15}}$$

1) $\frac{2}{5} + \frac{1}{4}$

Step 1

$$\boxed{5} \times \boxed{4} = \boxed{20}$$

Step 2

$$\frac{2}{5} = \frac{\boxed{8}}{\boxed{20}} \quad \frac{1}{4} = \frac{\boxed{5}}{\boxed{20}}$$

Step 3

$$\frac{\boxed{8}}{\boxed{20}} + \frac{\boxed{5}}{\boxed{20}} = \frac{\boxed{13}}{\boxed{20}}$$

2) $\frac{1}{6} + \frac{4}{5}$

Step 1

$$\boxed{6} \times \boxed{5} = \boxed{30}$$

Step 2

$$\frac{1}{6} = \frac{\boxed{5}}{\boxed{30}} \quad \frac{4}{5} = \frac{\boxed{24}}{\boxed{30}}$$

Step 3

$$\frac{\boxed{5}}{\boxed{30}} + \frac{\boxed{24}}{\boxed{30}} = \frac{\boxed{29}}{\boxed{30}}$$

3) $\frac{3}{5} + \frac{2}{11}$

Step 1

$$\boxed{} \times \boxed{} = \boxed{}$$

Step 2

$$\frac{3}{5} = \frac{\boxed{}}{\boxed{}} \quad \frac{2}{11} = \frac{\boxed{}}{\boxed{}}$$

Step 3

$$\frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

4) $\frac{1}{4} + \frac{5}{7}$

Step 1

$$\boxed{} \times \boxed{} = \boxed{}$$

Step 2

$$\frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} \quad \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

Step 3

$$\frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

Amber

Green

1) $\frac{1}{3} + \frac{1}{4}$

2) $\frac{2}{7} + \frac{1}{4}$

3) $\frac{3}{4} + \frac{1}{8}$

4) $\frac{1}{10} + \frac{3}{7}$

5) $\frac{5}{11} + \frac{1}{2}$

6) $\frac{2}{3} + \frac{1}{8}$

7) $\frac{5}{9} + \frac{2}{7}$

8) $\frac{2}{5} + \frac{1}{4}$

9) $\frac{6}{7} - \frac{3}{4}$

10) $\frac{7}{12} + \frac{1}{5}$

11) $\frac{9}{10} - \frac{8}{9}$

12) $\frac{4}{15} + \frac{3}{10}$

13) $\frac{7}{9} - \frac{2}{4}$

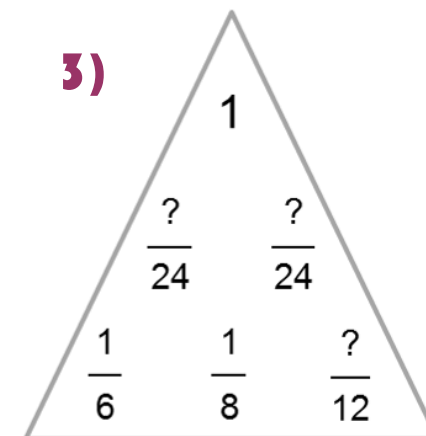
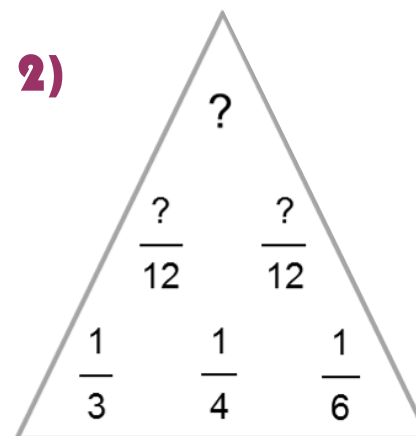
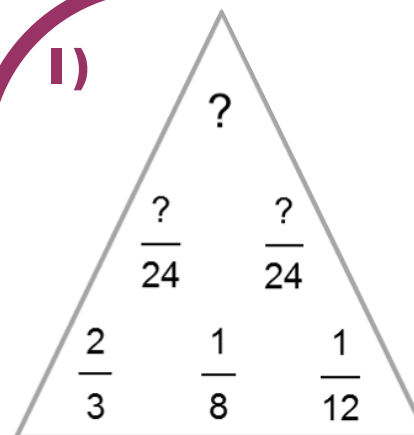
14) $\frac{3}{7} + \frac{3}{12}$

15) $\frac{10}{11} - \frac{1}{3}$

16) $\frac{10}{13} + \frac{5}{12}$

Extension

Fill in the question marks so that these addition triangles are correct



4)

$$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

Where would you place the digits 2, 3, 4 and 5 so that the fraction sum has the smallest possible answer?

Red

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Step 2

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$$\text{Step 3 } \frac{\boxed{7}}{\boxed{14}} + \frac{\boxed{6}}{\boxed{14}} = \frac{\boxed{13}}{\boxed{14}}$$

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Step 1 $\frac{2}{5} + \frac{1}{4}$

$5 \times 4 = 20$

Step 2

$\frac{2}{5} = \frac{\boxed{}}{20}$ (x4)

$\frac{1}{4} = \frac{\boxed{}}{20}$ (x5)

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 4 + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 5$

2) Step 1 $\frac{1}{6} + \frac{4}{5}$ Amber

$6 \times 5 = 30$

Step 2

$\frac{1}{6} = \frac{\boxed{}}{\boxed{}}$ (x5)

$\frac{4}{5} = \frac{\boxed{}}{\boxed{}}$ (x6)

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 5 + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 6$

3) $\frac{3}{5} + \frac{2}{11}$

Step 1

$\times$ =

Step 2

$\frac{3}{5} = \frac{\square}{\square}$ (x11)

$\frac{2}{11} = \frac{\square}{\square}$ (x5)

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 11 + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 5$

4) Step 1 $\frac{1}{4} + \frac{5}{7}$

$\times$ =

Step 2



Diagram illustrating the second step of the addition process. Two identical vertical stacks of two yellow squares each are shown. Blue curved arrows indicate the movement of the top square from each stack to the right, towards the other stack. An equals sign is placed between the two stacks.

Step 3

Step 1 $\frac{2}{5} + \frac{1}{4}$

$5 \times 4 = 20$

Step 2

$\frac{2}{5} = \frac{\square}{20}$ (multiplied by 4)

$\frac{1}{4} = \frac{\square}{20}$ (multiplied by 5)

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 4 + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 5$

2) $\frac{1}{6} + \frac{4}{5}$ Amber

Step 1

$6 \times 5 = 30$

Step 2

$\frac{1}{6} = \frac{\square}{\square}$ (multiply by 5)

$\frac{4}{5} = \frac{\square}{\square}$ (multiply by 6)

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 5 + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 6$

3) Step 1 $\frac{3}{5} + \frac{2}{11}$

$\times$ =

Step 2

$\frac{3}{5} = \frac{\boxed{}}{\boxed{}}$ (multiply by 11)

$\frac{2}{11} = \frac{\boxed{}}{\boxed{}}$ (multiply by 5)

Step 3

$\begin{matrix} \times 11 \\ \hline \square & \square \\ \hline \square & \square \end{matrix} + \begin{matrix} \square & \square \\ \hline \square & \square \end{matrix} = \begin{matrix} \times 5 \\ \hline \square & \square \\ \hline \square & \square \end{matrix}$

4) Step 1 $\frac{1}{4} + \frac{5}{7}$

$\times$ =

Step 2



Diagram illustrating the second step of the addition process, showing two identical vertical columns of two yellow squares each, with blue curved arrows indicating the flow of values between the squares.

Step 3

$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$

Answers Red:

1) $13/14$

2) $13/15$

Amber:

1) 13/20

2) 29/30

3) 43/55

4) 27/28

Green:

1) $7/12$

2) 15/28

3) $7/8$

4) 37/70

5) 21/22

6) 19/24

7) 53/63

8) $13/20$

9) $3/28$

10) 47/60

11) $1/90$

$$12) 85/150 = 17/30$$

13) $10/36 = 5/18$

14) $57/84 = 19/28$

15) 19/33

16) $185/156 = 1 \frac{29}{156}$

Extension:

1) $19/24, 20/96 = 5/24, 1$

2) $7/12, 10/24 = 5/12$

3) $14/48 = 7/24, 17/24, 7/12$

4) $\frac{2}{4} + \frac{3}{5}$