1 Adding Fractions

1.1 Exercises

Exercise 1 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{1}{2}}$ and $\mathbf{\frac{1}{3}}$.

2. Simplify?

Neither $\mathbf{\frac{1}{2}}$ nor $\mathbf{\frac{1}{3}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{1}{2} = \frac{1\times 3}{2\times 3} = \frac{3}{6}\ ;\ \ \frac{1}{3} = \frac{1\times 2}{3\times 2} = \frac{2}{6}}$$

4. Add

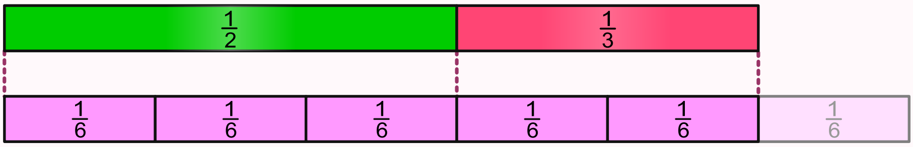
$$\mathbf{\frac{3}{6} + \frac{2}{6} = \frac{5}{6}}$$

5. Simplify?

$\mathbf{\frac{5}{6}}$ cannot be simplified.

6. Result

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



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Exercise 1 – Level 1

1. Goal?

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

2. Simplify?

$\frac{1}{2} =$

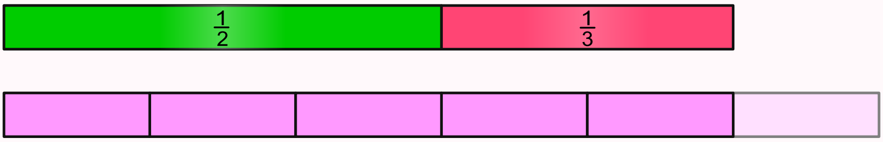
$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 1 – Level 2

1. Goal?

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

2. Simplify?

$\frac{1}{2} =$

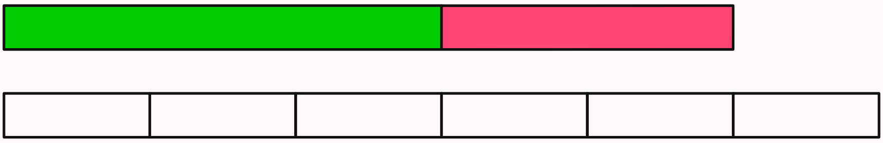
$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 1 – Level 3

1. Goal?

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

2. Simplify?

$\frac{1}{2} =$ $\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 2 – Solution

1. Goal?

We want to add the fractions $\boldsymbol{\frac{1}{6}}$ and $\boldsymbol{\frac{1}{2}}$.

2. Simplify?

Neither $\boldsymbol{\frac{1}{6}}$ nor $\boldsymbol{\frac{1}{2}}$ can be simplified.

3. Least Common Denominator

$$\boldsymbol{\frac{1}{6}} \;;\; \boldsymbol{\frac{1}{2}} = \boldsymbol{\frac{1\times 3}{2\times 3}} = \boldsymbol{\frac{3}{6}}$$

4. Add

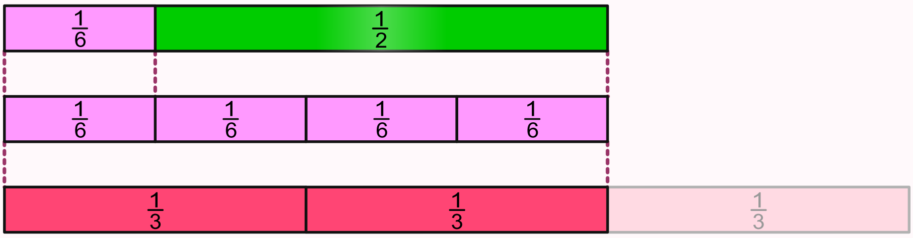
$$\boldsymbol{\frac{1}{6}} + \boldsymbol{\frac{3}{6}} = \boldsymbol{\frac{4}{6}}$$

5. Simplify?

$$\boldsymbol{\frac{4}{6}} = \boldsymbol{\frac{4\div 2}{6\div 2}} = \boldsymbol{\frac{2}{3}}$$

6. Result

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



Exercise 2 – Level 1

1. Goal?

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

2. Simplify?

$\frac{1}{6} =$

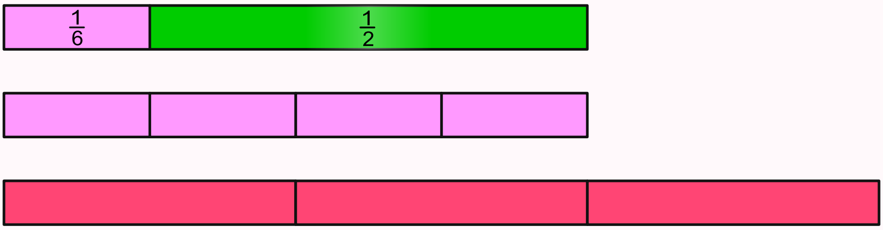
$\frac{1}{2} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result


$\frac{1}{6}$
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Exercise 2 – Level 2

1. Goal?

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

2. Simplify?

$\frac{1}{6} =$

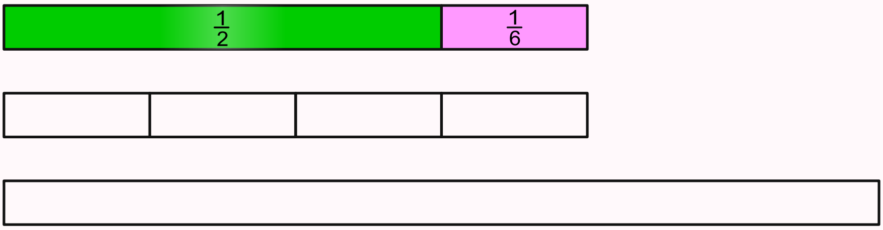
$\frac{1}{2} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 2 – Level 3

1. Goal?

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

2. Simplify?

$\frac{1}{6} =$

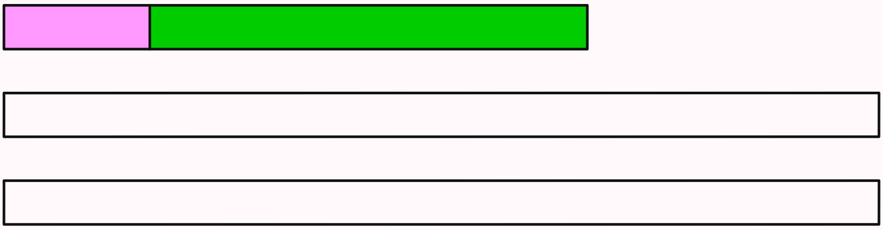
$\frac{1}{2} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 3 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{1}{2}}$ and $\mathbf{\frac{3}{10}}$.

2. Simplify?

Neither $\mathbf{\frac{1}{2}}$ nor $\mathbf{\frac{3}{10}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10} \quad ; \quad \frac{3}{10}}$$

4. Add

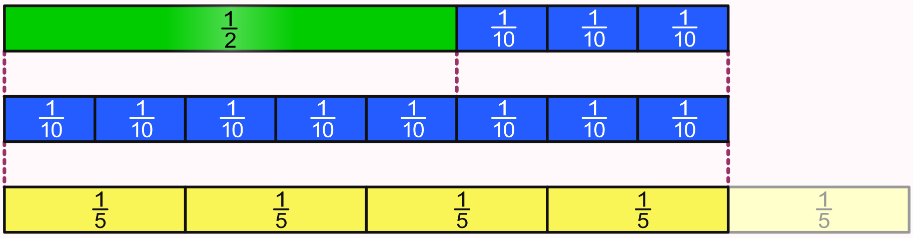
$$\mathbf{\frac{5}{10} + \frac{3}{10} = \frac{8}{10}}$$

5. Simplify?

$$\mathbf{\frac{8}{10} = \frac{8 \div 2}{10 \div 5} = \frac{4}{5}}$$

6. Result

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



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Exercise 3 – Level 1

1. Goal?

$$\frac{1}{2} + \frac{3}{10}$$

2. Simplify?

$\frac{1}{2} =$

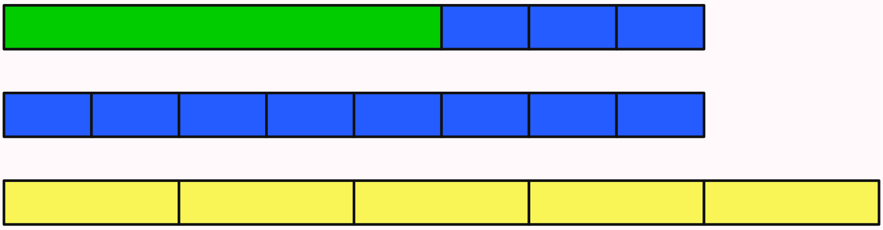
$\frac{3}{10} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 3 – Level 2

1. Goal?

$$\frac{1}{2} + \frac{3}{10}$$

2. Simplify?

$\frac{1}{2} =$

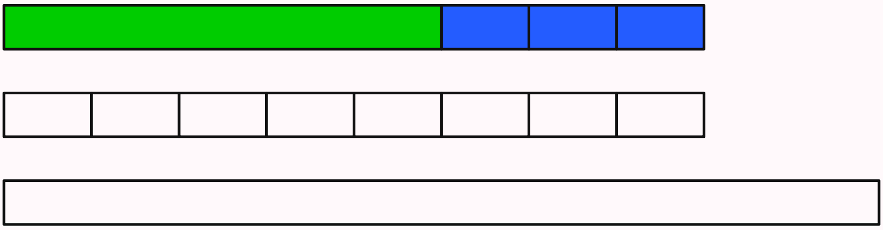
$\frac{3}{10} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 3 – Level 3

1. Goal?

$$\frac{1}{2} + \frac{3}{10}$$

2. Simplify?

$\frac{1}{2} =$

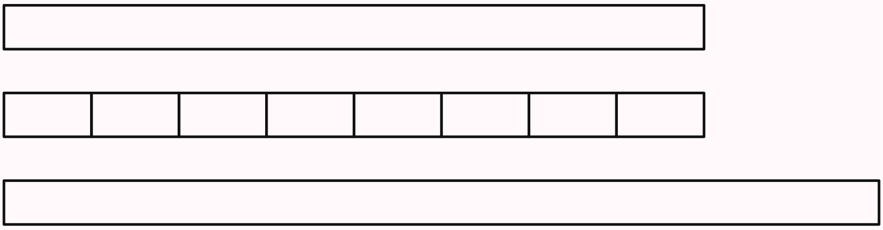
$\frac{3}{10} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 4 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{1}{4}}$ and $\mathbf{\frac{1}{3}}$.

2. Simplify?

Neither $\mathbf{\frac{1}{4}}$ nor $\mathbf{\frac{1}{3}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}} \ ; \ \mathbf{\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}}$$

4. Add

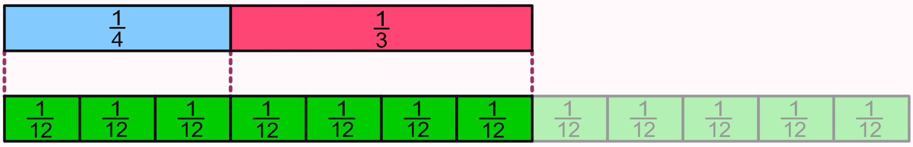
$$\mathbf{\frac{4}{12} + \frac{3}{12} = \frac{7}{12}}$$

5. Simplify?

$\mathbf{\frac{7}{12}}$ cannot be simplified.

6. Result

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



Exercise 4 – Level 1

1. Goal?

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

2. Simplify?

$\frac{1}{4}=$

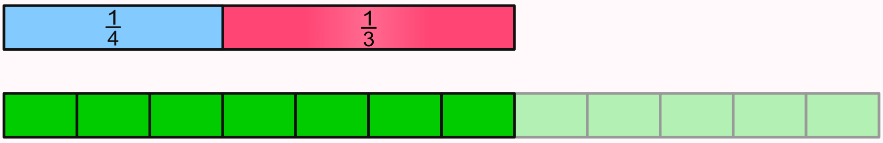
$\frac{1}{3}=$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 4 – Level 2

1. Goal?

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

2. Simplify?

$\frac{1}{4} =$

$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 4 – Level 3

1. Goal?

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

2. Simplify?

$\frac{1}{4} =$

$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 5 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{2}{3}}$ and $\mathbf{\frac{1}{5}}$.

2. Simplify?

Neither $\mathbf{\frac{2}{3}}$ nor $\mathbf{\frac{1}{5}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{2}{3} = \frac{2\times 5}{3\times 5} = \frac{10}{15}\ ;\quad \frac{1}{5} = \frac{1\times 3}{5\times 3} = \frac{3}{15}}$$

4. Add

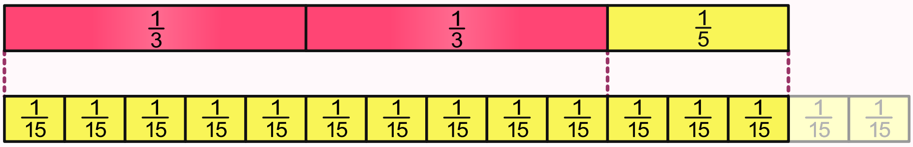
$$\mathbf{\frac{10}{15} + \frac{3}{15} = \frac{13}{15}}$$

5. Simplify?

$\mathbf{\frac{13}{15}}$ cannot be simplified.

6. Result

$$\frac{2}{3} + \frac{1}{5} = \frac{2\,\times\,5}{3\,\times\,5} + \frac{1\,\times\,3}{5\,\times\,3} = \frac{10}{15} + \frac{3}{15} = \frac{13}{15}$$



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Exercise 5 – Level 1

1. Goal?

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

2. Simplify?

$\frac{\mathbf{2}}{\mathbf{3}} =$

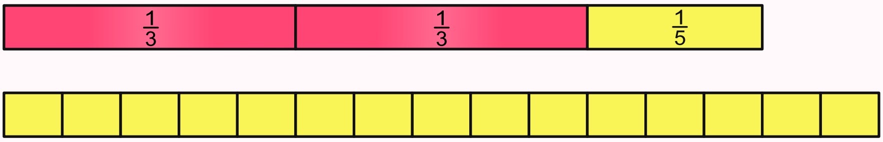
$\frac{\mathbf{1}}{\mathbf{5}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result


$\frac{1}{3}$
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$\frac{1}{5}$

Exercise 5 – Level 2

1. Goal?

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

2. Simplify?

$\frac{2}{3} =$

$\frac{1}{5} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 5 – Level 3

1. Goal?

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

2. Simplify?

$\frac{2}{3} =$

$\frac{1}{5} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 6 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{2}{4}}$ and $\mathbf{\frac{2}{6}}$.

2. Simplify?

$$\mathbf{\frac{2}{4} = \frac{2 \div 2}{4 \div 2} = \frac{1}{2}} \quad ; \quad \mathbf{\frac{2}{6} = \frac{2 \div 2}{6 \div 2} = \frac{1}{3}}$$

3. Least Common Denominator

$$\mathbf{\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}} \ ; \ \mathbf{\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}}$$

4. Add

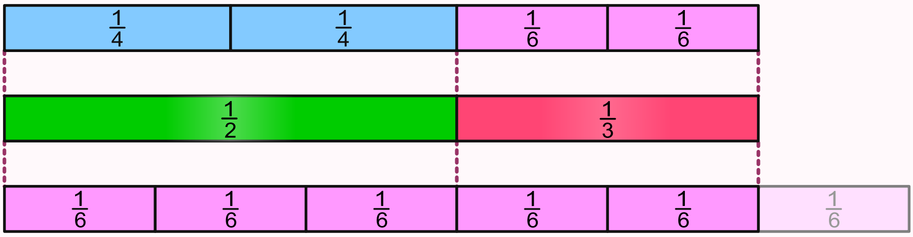
$$\mathbf{\frac{3}{6} + \frac{2}{6} = \frac{5}{6}}$$

5. Simplify?

$\mathbf{\frac{5}{6}}$ cannot be simplified.

6. Result

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



Exercise 6 – Level 1

1. Goal?

$$\frac{2}{4} + \frac{2}{6}$$

2. Simplify?

$\frac{2}{4} =$

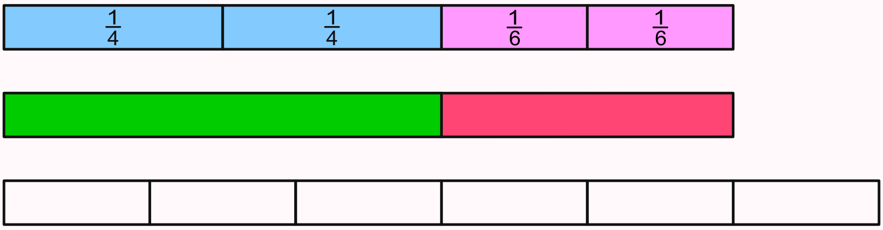
$\frac{2}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 6 – Level 2

1. Goal?

$$\frac{2}{4}+\frac{2}{6}$$

2. Simplify?

$\frac{2}{4} =$

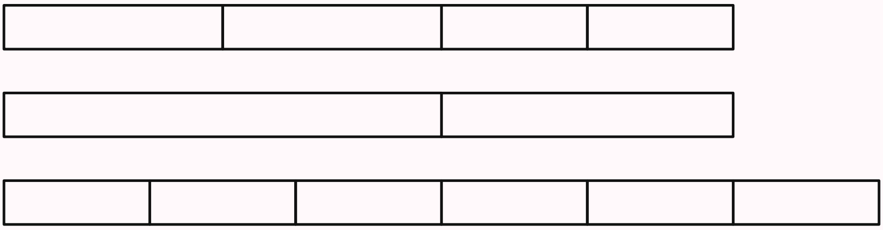
$\frac{2}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 6 – Level 3

1. Goal?

$$\frac{2}{4}+\frac{2}{6}$$

2. Simplify?

$\frac{2}{4} =$

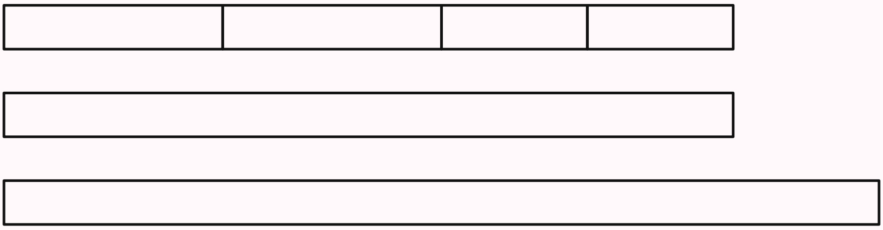
$\frac{2}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 7 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{3}{10}}$ and $\mathbf{\frac{1}{5}}$.

2. Simplify?

Neither $\mathbf{\frac{3}{10}}$ nor $\mathbf{\frac{1}{5}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{3}{10}} \;;\; \mathbf{\frac{1}{5}} = \mathbf{\frac{1\times 2}{5\times 2}} = \mathbf{\frac{2}{10}}$$

4. Add

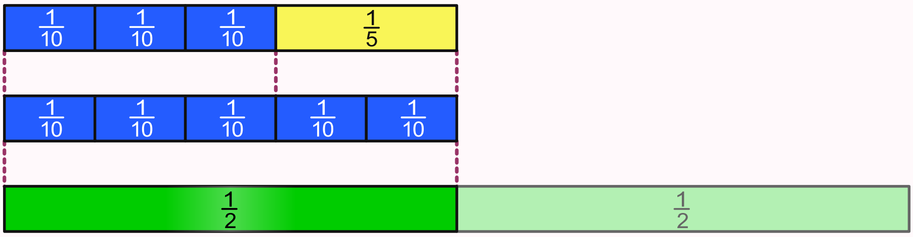
$$\mathbf{\frac{3}{10}} + \mathbf{\frac{2}{10}} = \mathbf{\frac{5}{10}}$$

5. Simplify?

$$\mathbf{\frac{5}{10}} = \mathbf{\frac{5\div 5}{10\div 5}} = \mathbf{\frac{1}{2}}$$

6. Result

$$\frac{3}{10}+\frac{1}{5}=\frac{3}{10}+\frac{1\times 2}{5\times 2}=\frac{3}{10}+\frac{2}{10}=\frac{5}{10}=\frac{5\div 5}{10\div 5}=\frac{1}{2}$$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$\frac{1}{2}$
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Exercise 7 – Level 1

1. Goal?

$$\frac{3}{10} + \frac{1}{5}$$

2. Simplify?

$\frac{3}{10} =$

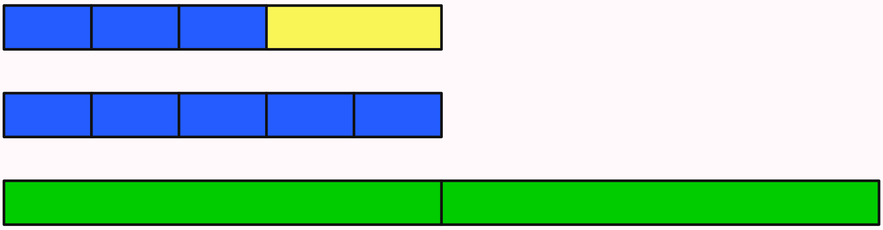
$\frac{1}{5} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 7 – Level 2

1. Goal?

$$\frac{3}{10} + \frac{1}{5}$$

2. Simplify?

$\frac{3}{10} =$

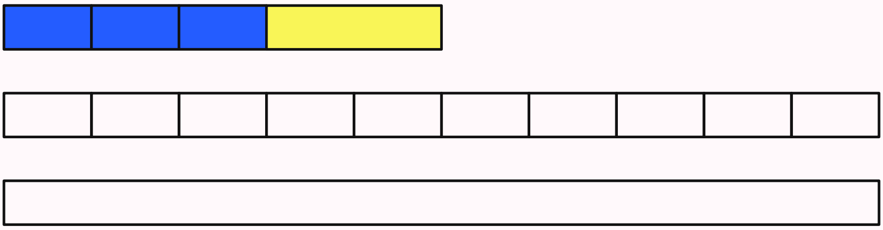
$\frac{1}{5} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 7 – Level 3

1. Goal?

$$\frac{3}{10} + \frac{1}{5}$$

2. Simplify?

$\frac{3}{10} =$

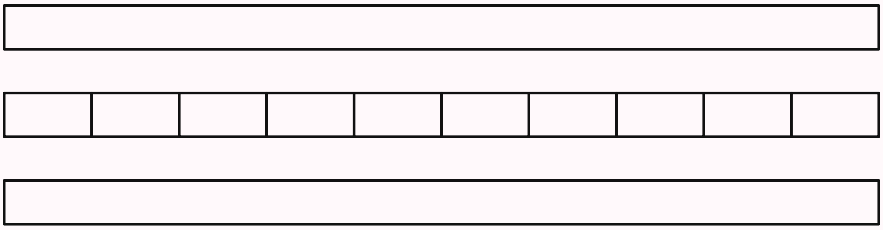
$\frac{1}{5} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 8 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{3}{4}}$ and $\mathbf{\frac{2}{5}}$.

2. Simplify?

Neither $\mathbf{\frac{3}{4}}$ nor $\mathbf{\frac{2}{5}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{3}{4} = \frac{3 \times 5}{4 \times 5} = \frac{15}{20}} \; ; \; \mathbf{\frac{2}{5} = \frac{2 \times 4}{5 \times 4} = \frac{8}{20}}$$

4. Add

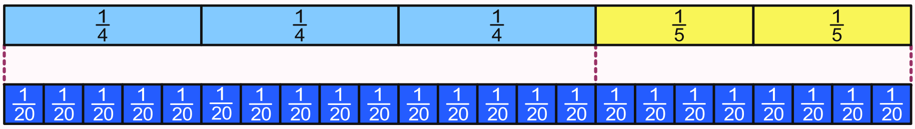
$$\mathbf{\frac{15}{20} + \frac{8}{20} = \frac{23}{20}}$$

5. Simplify?

$\mathbf{\frac{23}{20}}$ cannot be simplified.

6. Result

$$\frac{3}{4} + \frac{2}{5} = \frac{3 \times 5}{4 \times 5} + \frac{2 \times 4}{5 \times 2} = \frac{15}{20} + \frac{8}{20} = \frac{23}{20}$$



Exercise 8 – Level 1

1. Goal?

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

2. Simplify?

$\frac{\mathbf{3}}{\mathbf{4}} =$

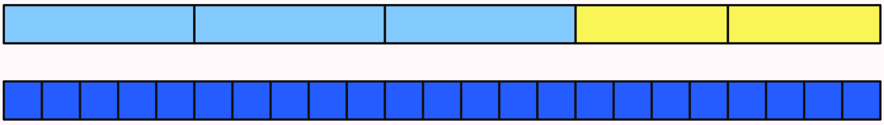
$\frac{\mathbf{2}}{\mathbf{5}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 8 – Level 2

1. Goal?

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

2. Simplify?

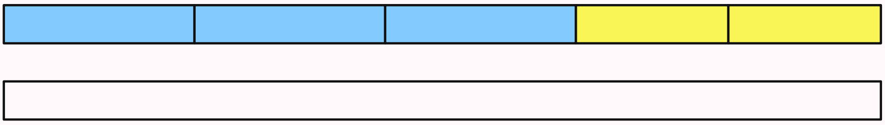
$\frac{3}{4}=$ $\frac{2}{5}=$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 8 – Level 3

1. Goal?

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

2. Simplify?

$\mathbf{\frac{3}{4}} =$

$\mathbf{\frac{2}{5}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 9 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{6}{20}}$ and $\mathbf{\frac{9}{18}}$.

2. Simplify?

$$\frac{6}{20} = \frac{6 \div 2}{20 \div 2} = \frac{3}{10} \qquad \frac{9}{18} = \frac{9 \div 9}{18 \div 9} = \frac{1}{2}$$

3. Least Common Denominator

$$\frac{3}{10} \;\; ; \;\; \frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

4. Add

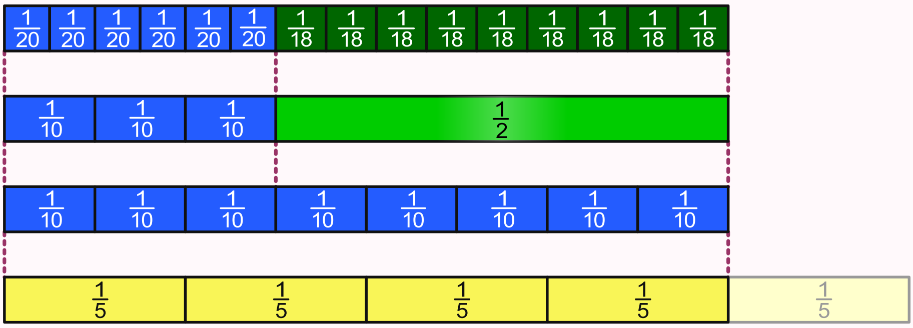
$$\frac{3}{10} + \frac{5}{10} = \frac{8}{10}$$

5. Simplify?

$$\frac{8}{10} = \frac{8 \div 2}{10 \div 2} = \frac{4}{5}$$

6. Result

$$\frac{6}{20}+\frac{9}{18} = \frac{6 \div 2}{20 \div 2}+\frac{9 \div 9}{18 \div 9} = \frac{3}{10}+\frac{1}{2} = \frac{3}{10}+\frac{1 \times 5}{2 \times 5} = \frac{3}{10}+\frac{5}{10} = \frac{8}{10} = \frac{8 \div 2}{10 \div 2} = \frac{4}{5}$$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Exercise 9 – Level 1

1. Goal?

$$\frac{6}{20} + \frac{9}{18}$$

2. Simplify?

$\frac{6}{20} =$

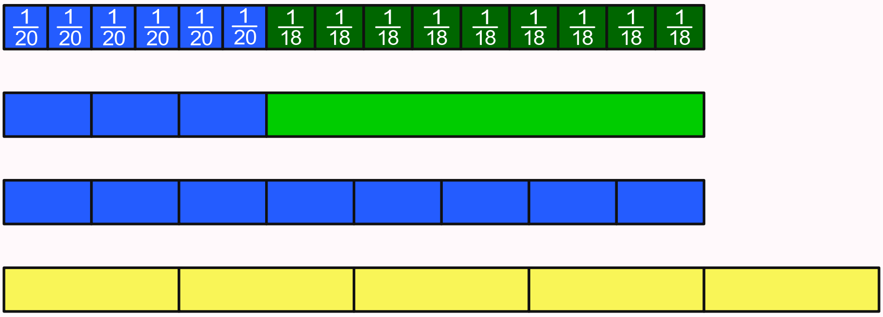
$\frac{9}{18} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 9 – Level 2

1. Goal?

$$\frac{6}{20} + \frac{9}{18}$$

2. Simplify?

$\frac{6}{20} =$

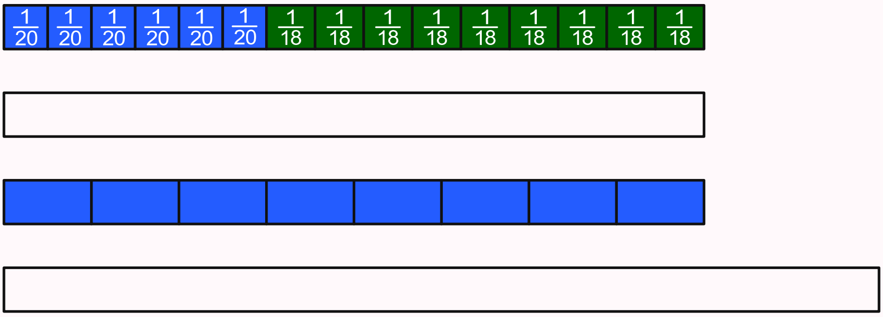
$\frac{9}{18} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 9 – Level 3

1. Goal?

$$\frac{6}{20} + \frac{9}{18}$$

2. Simplify?

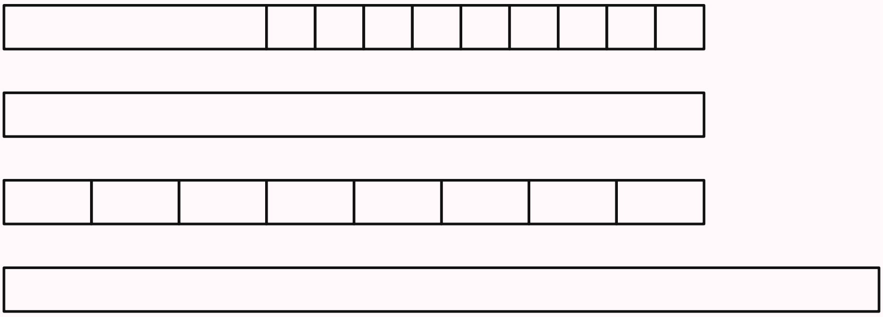
$\frac{6}{20} =$ $\frac{9}{18} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 10 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{4}{8}}$ and $\mathbf{\frac{5}{30}}$.

2. Simplify?

$$\mathbf{\frac{4}{8} = \frac{4 \div 4}{8 \div 4} = \frac{1}{2} \quad ; \quad \frac{5}{30} = \frac{5 \div 5}{30 \div 5} = \frac{1}{6}}$$

3. Least Common Denominator

$$\mathbf{\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6} \; ; \; \frac{1}{6}}$$

4. Add

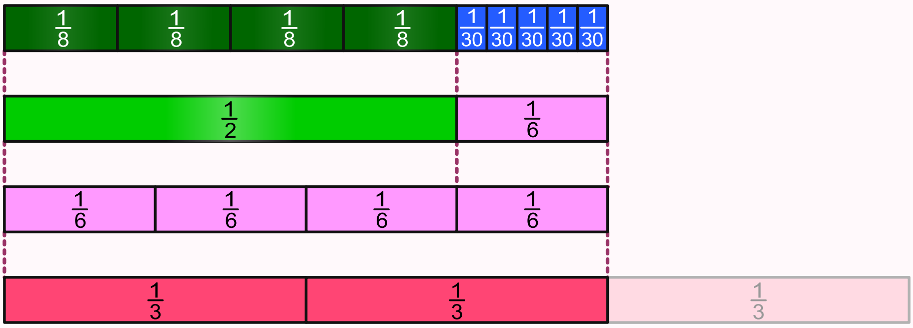
$$\mathbf{\frac{3}{6} + \frac{1}{6} = \frac{4}{6}}$$

5. Simplify?

$$\mathbf{\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}}$$

6. Result

$$\frac{4}{8}+\frac{5}{30} = \frac{4 \div 4}{8 \div 4}+\frac{5 \div 5}{30 \div 5} = \frac{1}{2}+\frac{1}{6} = \frac{1 \times 3}{2 \times 3}+\frac{1}{6} = \frac{3}{6}+\frac{1}{6} = \frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$



Exercise 10 – Level 1

1. Goal?

$$\frac{4}{8} + \frac{5}{30}$$

2. Simplify?

$\frac{4}{8} =$

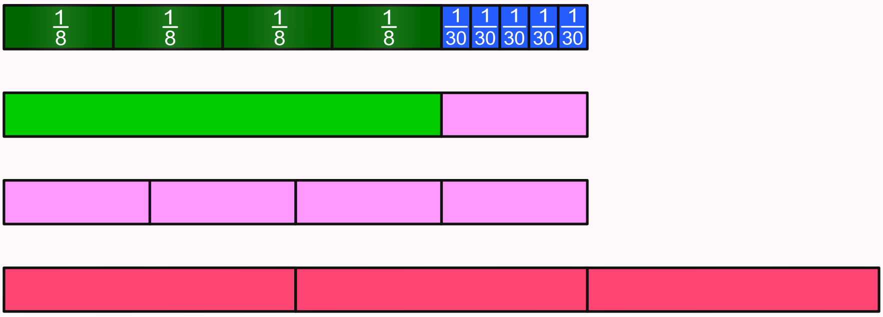
$\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 10 – Level 2

1. Goal?

$$\frac{4}{8} + \frac{5}{30}$$

2. Simplify?

$\frac{4}{8} =$

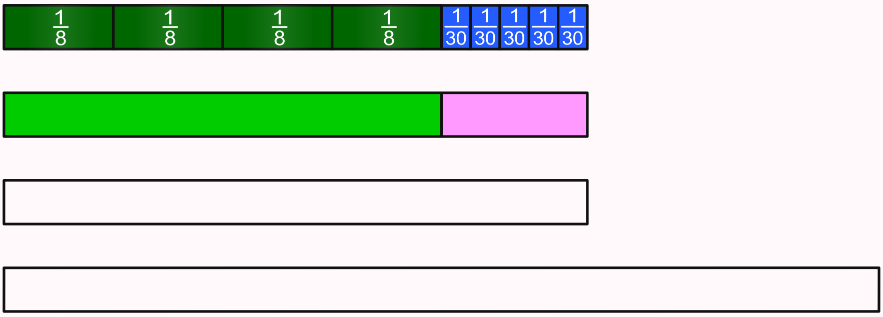
$\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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Exercise 10 – Level 3

1. Goal?

$$\frac{4}{8} + \frac{5}{30}$$

2. Simplify?

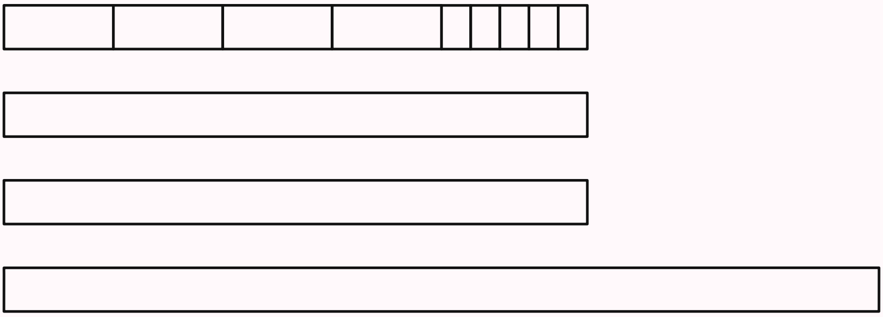
$\frac{4}{8} =$ $\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 11 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{1}{4}}$ and $\mathbf{\frac{5}{12}}$.

2. Simplify?

Neither $\mathbf{\frac{1}{4}}$ nor $\mathbf{\frac{5}{12}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{1}{4} = \frac{1\times 3}{4\times 3} = \frac{3}{12}\ ;\ \frac{5}{12}}$$

4. Add

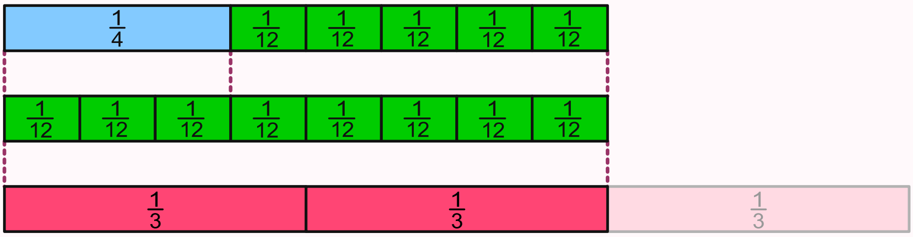
$$\mathbf{\frac{3}{12} + \frac{5}{12} = \frac{8}{12}}$$

5. Simplify?

$$\mathbf{\frac{8}{12} = \frac{8\div 4}{12\div 4} = \frac{2}{3}}$$

6. Result

$$\frac{1}{4} + \frac{5}{12} = \frac{1\times 3}{4\times 3} + \frac{5}{12} = \frac{3}{12} + \frac{5}{12} = \frac{8}{12} = \frac{8\div 4}{12\div 4} = \frac{2}{3}$$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Exercise 11 – Level 1

1. Goal? $\frac{1}{4} + \frac{5}{12}$

2. Simplify?

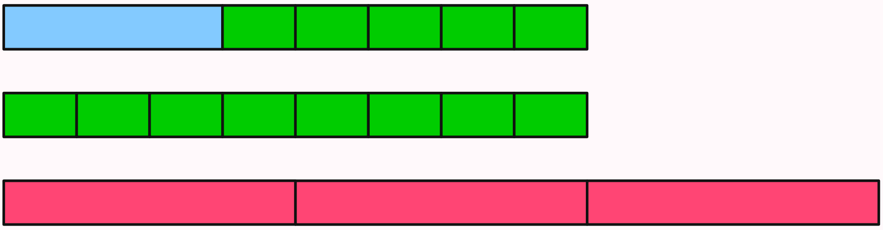
$\frac{1}{4} =$ $\frac{5}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 11 – Level 2

1. Goal?

$$\frac{1}{4} + \frac{5}{12}$$

2. Simplify?

$\frac{1}{4} =$

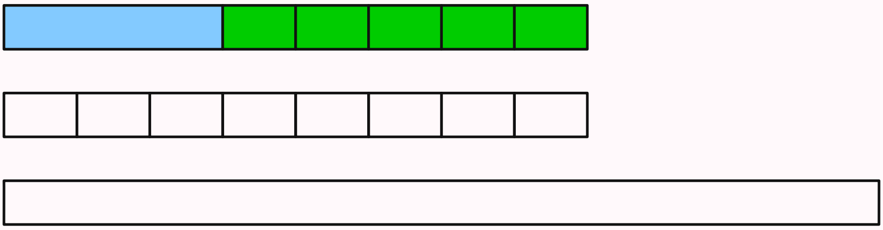
$\frac{5}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 11 – Level 3

1. Goal?

$$\frac{1}{4} + \frac{5}{12}$$

2. Simplify?

$\frac{1}{4} =$

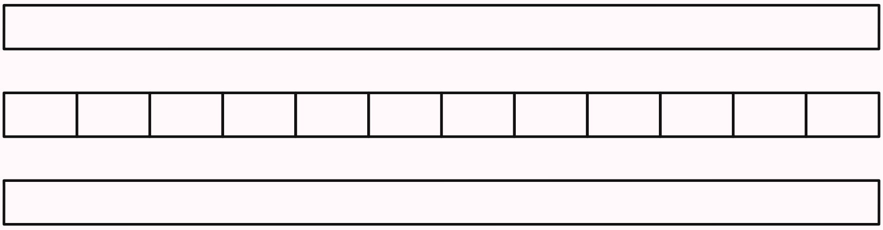
$\frac{5}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 12 – Solution

1. Goal?

We want to add the fractions $\frac{7}{15}$ and $\frac{1}{3}$.

2. Simplify?

Neither $\frac{7}{15}$ nor $\frac{1}{3}$ can be simplified.

3. Least Common Denominator

$$\frac{7}{15} \;;\; \frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

4. Add

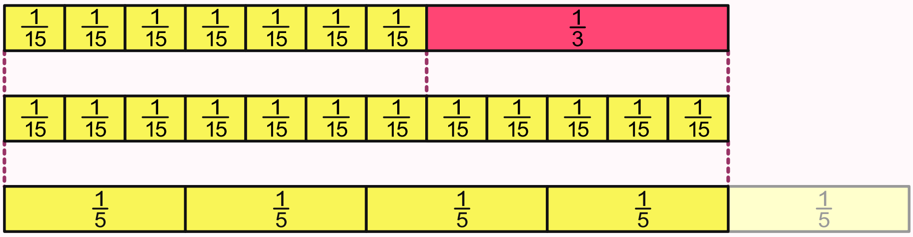
$$\frac{7}{15} + \frac{5}{15} = \frac{12}{15}$$

5. Simplify?

$$\frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$

6. Result

$$\frac{7}{15} + \frac{1}{3} = \frac{7}{15} + \frac{1 \times 5}{3 \times 5} = \frac{7}{15} + \frac{5}{15} = \frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$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Exercise 12 – Level 1

1. Goal?

$$\frac{7}{15} + \frac{1}{3}$$

2. Simplify?

$\frac{7}{15} =$

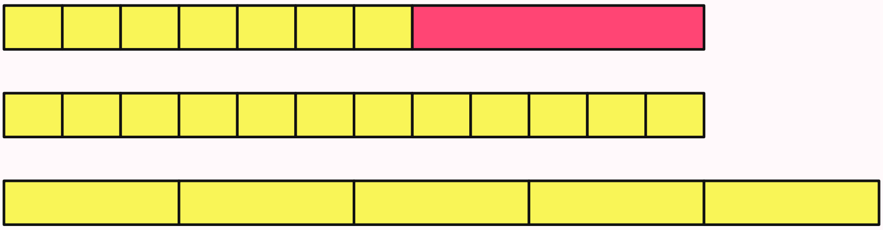
$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 12 – Level 2

1. Goal?

$$\frac{7}{15} + \frac{1}{3}$$

2. Simplify?

$\frac{7}{15} =$

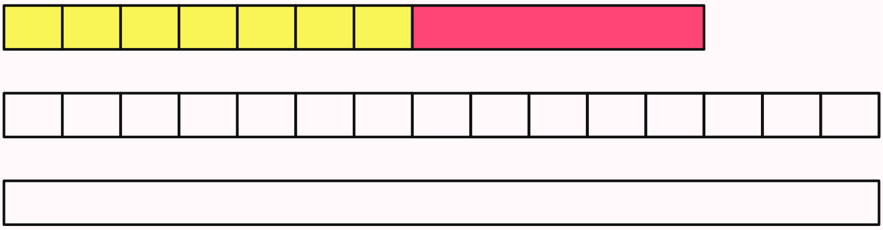
$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 12 – Level 3

1. Goal?

$$\frac{7}{15} + \frac{1}{3}$$

2. Simplify?

$\frac{7}{15} =$

$\frac{1}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 13 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{5}{18}}$ and $\mathbf{\frac{5}{6}}$.

2. Simplify?

Neither $\mathbf{\frac{5}{18}}$ nor $\mathbf{\frac{5}{6}}$ can be simplified.

3. Least Common Denominator

$$\mathbf{\frac{5}{18}} \ ; \ \mathbf{\frac{5}{6}} = \mathbf{\frac{5\times 3}{6\times 3}} = \mathbf{\frac{15}{18}}$$

4. Add

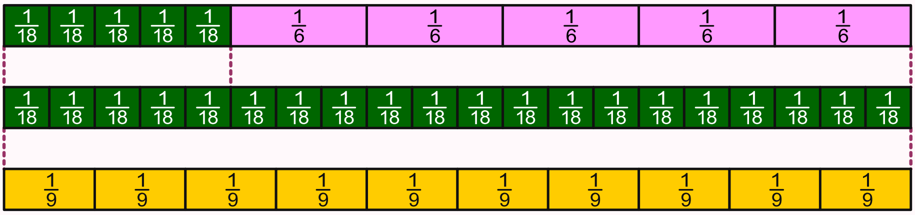
$$\mathbf{\frac{5}{18}} + \mathbf{\frac{15}{18}} = \mathbf{\frac{20}{18}}$$

5. Simplify?

$$\mathbf{\frac{20}{18}} = \mathbf{\frac{20\div 2}{18\div 2}} = \mathbf{\frac{10}{9}}$$

6. Result

$$\frac{5}{18}+\frac{5}{6}=\frac{5}{18}+\frac{5\times 3}{6\times 3}=\frac{5}{18}+\frac{15}{18}=\frac{20}{18}=\frac{20\div 2}{18\div 2}=\frac{10}{9}$$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Exercise 13 – Level 1

1. Goal?

$$\frac{5}{18} + \frac{5}{6}$$

2. Simplify?

$\frac{5}{18} =$

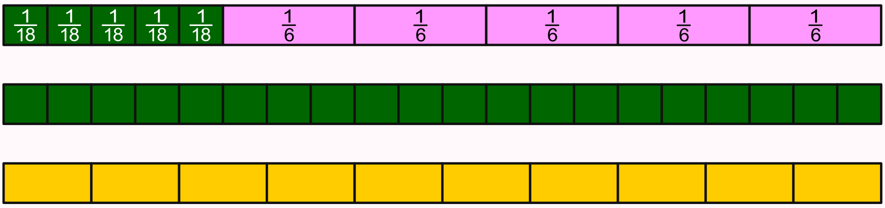
$\frac{5}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 13 – Level 2

1. Goal?

$$\frac{5}{18} + \frac{5}{6}$$

2. Simplify?

$\frac{5}{18} =$

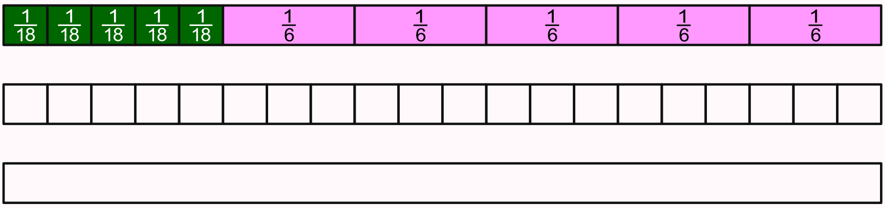
$\frac{5}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 13 – Level 3

1. Goal?

$$\frac{5}{18} + \frac{5}{6}$$

2. Simplify?

$\frac{5}{18} =$

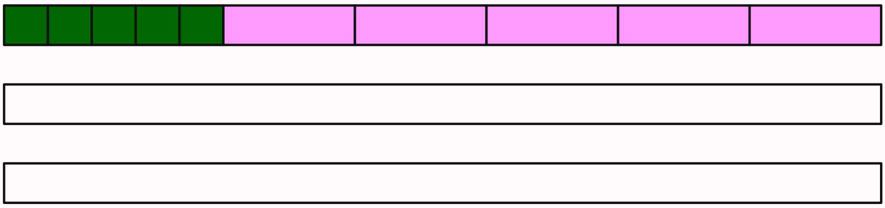
$\frac{5}{6} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 14 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{4}{14}}$ and $\mathbf{\frac{2}{3}}$.

2. Simplify?

$$\frac{4}{14} = \frac{4 \div 2}{14 \div 2} = \frac{2}{7} \quad ; \quad \frac{2}{3}$$

3. Least Common Denominator

$$\frac{2}{7} = \frac{2 \times 3}{7 \times 3} = \frac{6}{21} \;\; ; \;\; \frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$$

4. Add

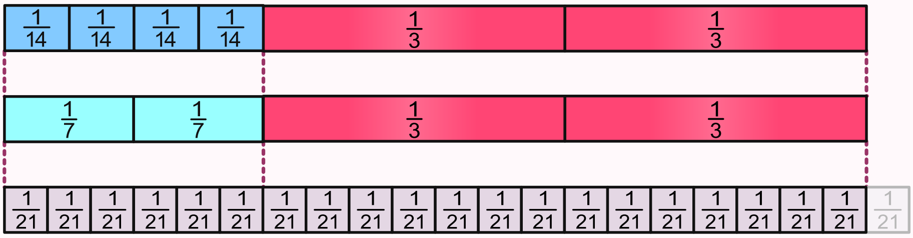
$$\frac{6}{21} + \frac{14}{21} = \frac{20}{21}$$

5. Simplify?

$\mathbf{\frac{20}{21}}$ cannot be simplified.

6. Result

$$\frac{4}{14} + \frac{2}{3} = \frac{4 \div 2}{14 \div 2} + \frac{2}{3} = \frac{2}{7} + \frac{2}{3} = \frac{2 \times 3}{7 \times 3} + \frac{2 \times 7}{3 \times 7} = \frac{6}{21} + \frac{14}{21} = \frac{20}{21}$$



Exercise 14 – Level 1

1. Goal?

$$\frac{4}{14} + \frac{2}{3}$$

2. Simplify?

$\frac{4}{14} =$

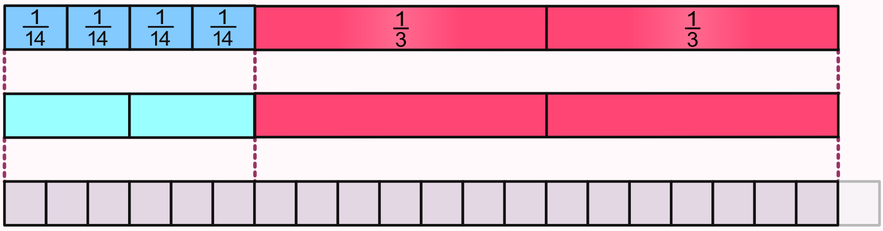
$\frac{2}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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Exercise 14 – Level 2

1. Goal?

$$\frac{4}{14} + \frac{2}{3}$$

2. Simplify?

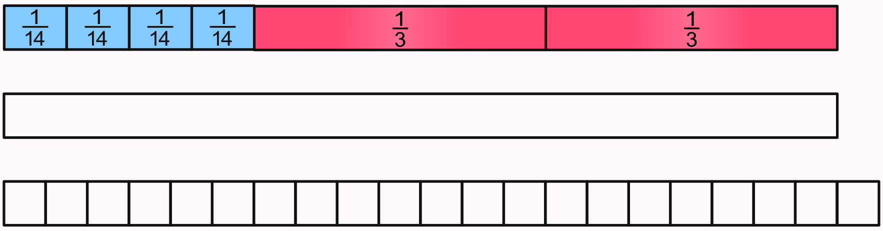
$\frac{4}{14} =$ $\frac{2}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 14 – Level 3

1. Goal?

$$\frac{4}{14} + \frac{2}{3}$$

2. Simplify?

$\frac{4}{14} =$

$\frac{2}{3} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 15 – Solution

1. Goal? We want to add the fractions $\mathbf{\frac{3}{9}}$ and $\mathbf{\frac{5}{30}}$.

2. Simplify?

$$\mathbf{\frac{3}{9} = \frac{3 \div 3}{9 \div 3} = \frac{1}{3}} \quad ; \quad \mathbf{\frac{5}{30} = \frac{5 \div 5}{30 \div 5} = \frac{1}{6}}$$

3. Least Common Denominator

$$\mathbf{\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}} \quad ; \quad \mathbf{\frac{1}{6}}$$

4. Add

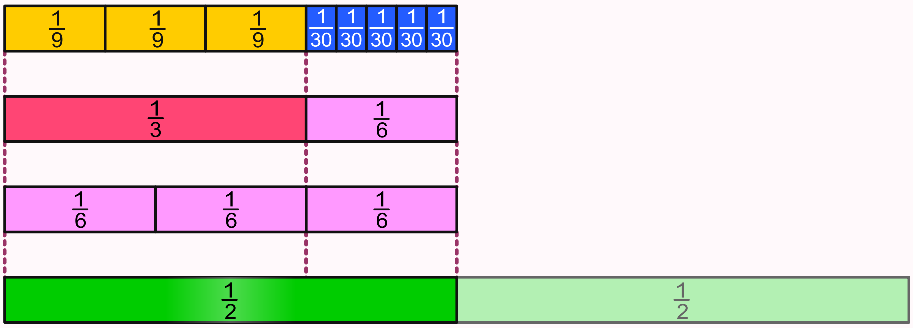
$$\mathbf{\frac{2}{6} + \frac{1}{6} = \frac{3}{6}}$$

5. Simplify?

$$\mathbf{\frac{3}{6} = \frac{3 \div 3}{6 \div 3} = \frac{1}{2}}$$

6. Result

$$\frac{3}{9}+\frac{5}{30} = \frac{3 \div 3}{9 \div 3}+\frac{5 \div 5}{30 \div 5} = \frac{1}{3}+\frac{1}{6} = \frac{1 \times 2}{3 \times 2}+\frac{1}{6} = \frac{2}{6}+\frac{1}{6} = \frac{3}{6} = \frac{3 \div 2}{6 \div 2} = \frac{1}{2}$$



Exercise 15 – Level 1

1. Goal?

$$\frac{3}{9} + \frac{5}{30}$$

2. Simplify?

$\frac{3}{9} =$

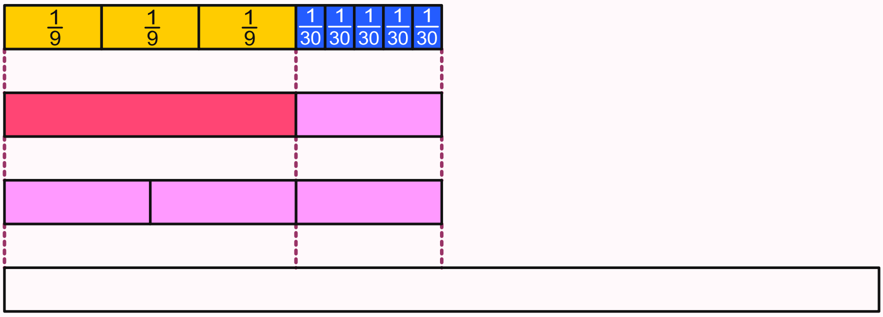
$\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 15 – Level 2

1. Goal?

$$\frac{3}{9} + \frac{5}{30}$$

2. Simplify?

$\frac{3}{9} =$

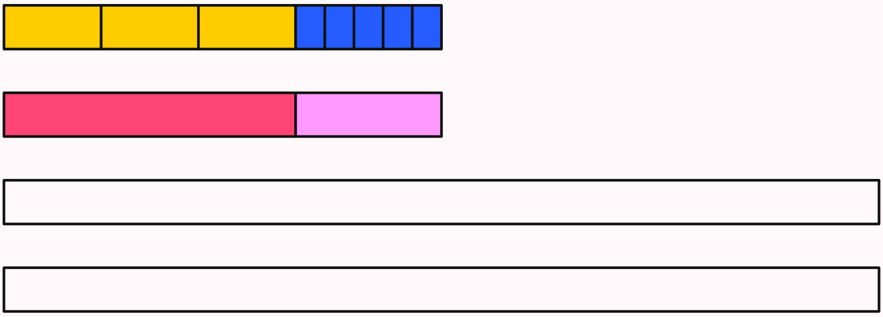
$\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 15 – Level 3

1. Goal?

$$\frac{3}{9} + \frac{5}{30}$$

2. Simplify?

$\frac{3}{9} =$

$\frac{5}{30} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 16 – Solution

1. Goal?

We want to add the fractions $\frac{8}{11}$ and $\frac{4}{12}$.

2. Simplify?

$$\frac{8}{11} \quad ; \quad \frac{4}{12} = \frac{4 \div 4}{12 \div 4} = \frac{1}{3}$$

3. Least Common Denominator

$$\frac{8}{11} = \frac{8 \times 3}{11 \times 3} = \frac{24}{33} \; ; \; \frac{1}{3} = \frac{1 \times 11}{3 \times 11} = \frac{11}{33}$$

4. Add

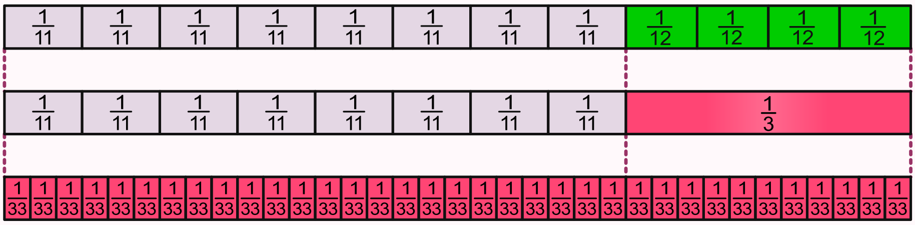
$$\frac{24}{33} + \frac{11}{33} = \frac{35}{33}$$

5. Simplify?

$\frac{35}{33}$ cannot be simplified.

6. Result

$$\frac{8}{11} + \frac{4}{12} = \frac{8}{11} + \frac{4 \div 4}{12 \div 4} = \frac{8}{11} + \frac{1}{3} = \frac{8 \times 3}{11 \times 3} + \frac{1 \times 11}{3 \times 11} = \frac{24}{33} + \frac{11}{33} = \frac{35}{33}$$



Exercise 16 – Level 1

1. Goal?

$$\frac{8}{11} + \frac{4}{12}$$

2. Simplify?

$\frac{8}{11} =$

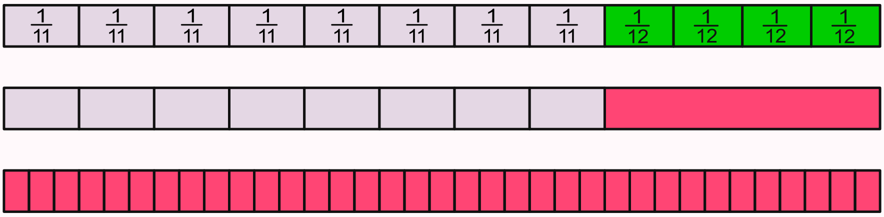
$\frac{4}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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Exercise 16 – Level 2

1. Goal?

$$\frac{8}{11} + \frac{4}{12}$$

2. Simplify?

$\frac{8}{11} =$

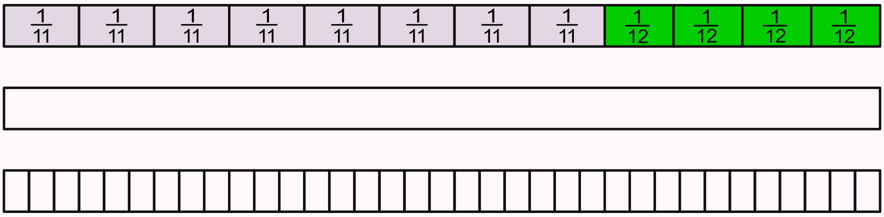
$\frac{4}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 16 – Level 3

1. Goal?

$$\frac{8}{11} + \frac{4}{12}$$

2. Simplify?

$\frac{8}{11} =$

$\frac{4}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 17 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{11}{33}}$ and $\mathbf{\frac{21}{45}}$.

2. Simplify?

$$\mathbf{\frac{11}{33} = \frac{11 \div 11}{33 \div 11} = \frac{1}{3} \quad ; \quad \frac{21}{45} = \frac{21 \div 3}{45 \div 3} = \frac{7}{15}}$$

3. Least Common Denominator

$$\mathbf{\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15} \quad ; \quad \frac{7}{15}}$$

4. Add

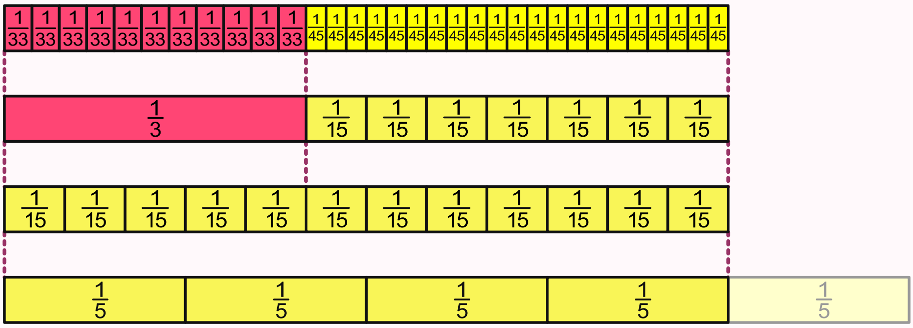
$$\mathbf{\frac{5}{15} + \frac{7}{15} = \frac{12}{15}}$$

5. Simplify?

$$\mathbf{\frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}}$$

6. Result

$$\frac{11}{33}+\frac{21}{45} = \frac{11 \div 11}{33 \div 11}+\frac{21 \div 3}{45 \div 3} = \frac{1}{3}+\frac{7}{15} = \frac{1 \times 5}{3 \times 5}+\frac{7}{15} = \frac{5}{15}+\frac{7}{15} = \frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$



Exercise 17 – Level 1

1. Goal?

$$\frac{11}{33} + \frac{21}{45}$$

2. Simplify?

$\frac{11}{33} =$

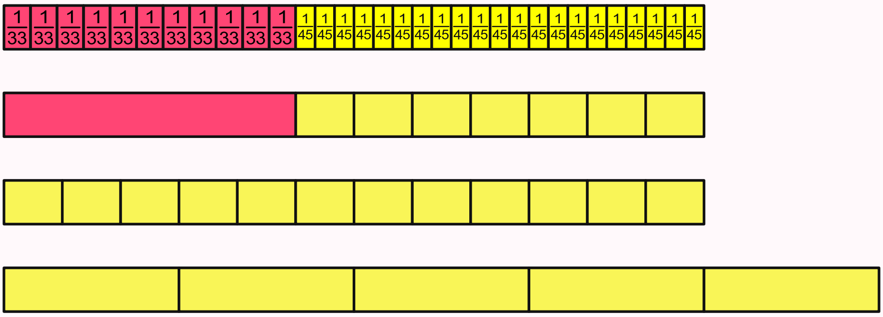
$\frac{21}{45} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 17 – Level 2

1. Goal?

$$\mathbf{\frac{11}{33}} + \mathbf{\frac{21}{45}}$$

2. Simplify?

$\mathbf{\frac{11}{33}} =$

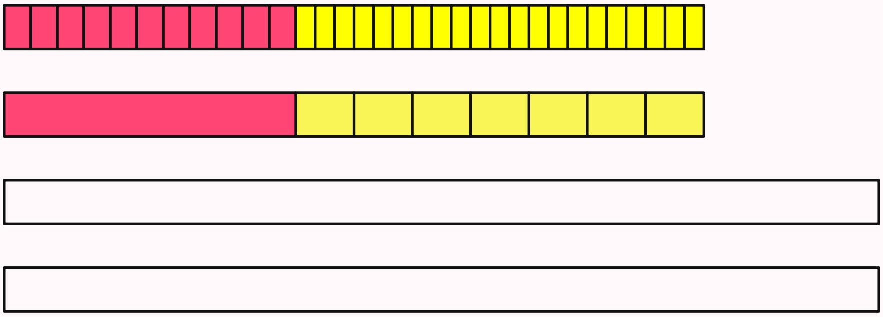
$\mathbf{\frac{21}{45}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 17 – Level 3

1. Goal?

$$\frac{11}{33} + \frac{21}{45}$$

2. Simplify?

$\frac{11}{33} =$

$\frac{21}{45} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 18 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{15}{50}}$ and $\mathbf{\frac{7}{35}}$.

2. Simplify?

$$\frac{15}{50} = \frac{15 \div 5}{50 \div 5} = \frac{3}{10} \quad ; \quad \frac{7}{35} = \frac{7 \div 7}{35 \div 7} = \frac{1}{5}$$

3. Least Common Denominator

$$\frac{3}{10} \;\; ; \;\; \frac{1}{5} = \frac{1 \times 2}{5 \times 2} = \frac{2}{10}$$

4. Add

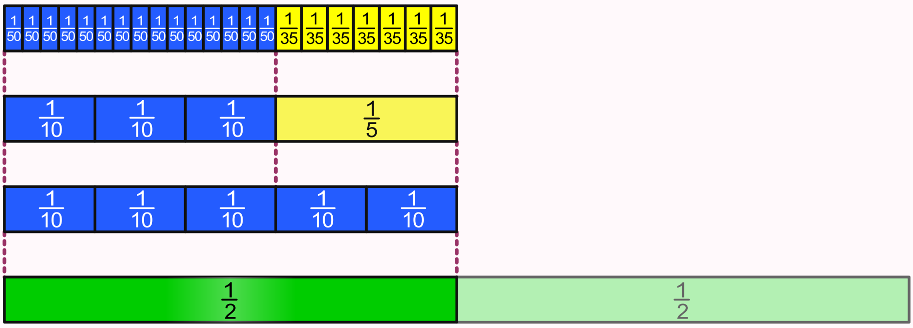
$$\frac{3}{10} + \frac{2}{10} = \frac{5}{10}$$

5. Simplify?

$$\frac{5}{10} = \frac{5 \div 5}{10 \div 5} = \frac{1}{2}$$

6. Result

$$\frac{15}{50}+\frac{7}{35} = \frac{15 \div 5}{50 \div 5}+\frac{7 \div 7}{35 \div 7} = \frac{3}{10}+\frac{1}{5} = \frac{3}{10}+\frac{1 \times 2}{5 \times 2} = \frac{3}{10}+\frac{2}{10} = \frac{5}{10} = \frac{5 \div 5}{10 \div 5} = \frac{1}{2}$$



Exercise 18 – Level 1

1. Goal?

$$\frac{\mathbf{15}}{\mathbf{50}} + \frac{\mathbf{7}}{\mathbf{35}}$$

2. Simplify?

$\frac{\mathbf{15}}{\mathbf{50}} =$

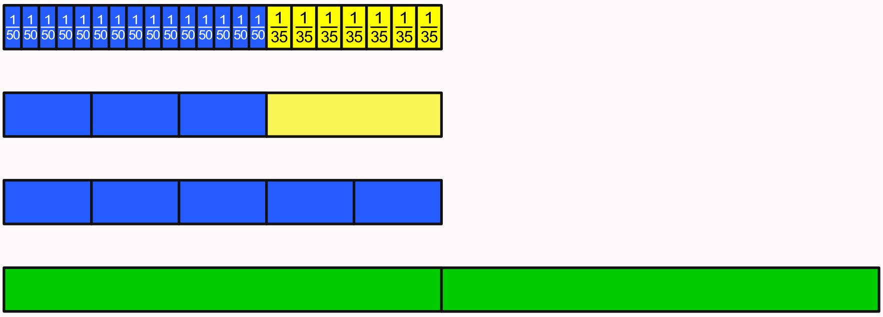
$\frac{\mathbf{7}}{\mathbf{35}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 18 – Level 2

1. Goal?

$$\frac{15}{50} + \frac{7}{35}$$

2. Simplify?

$\frac{15}{50} =$

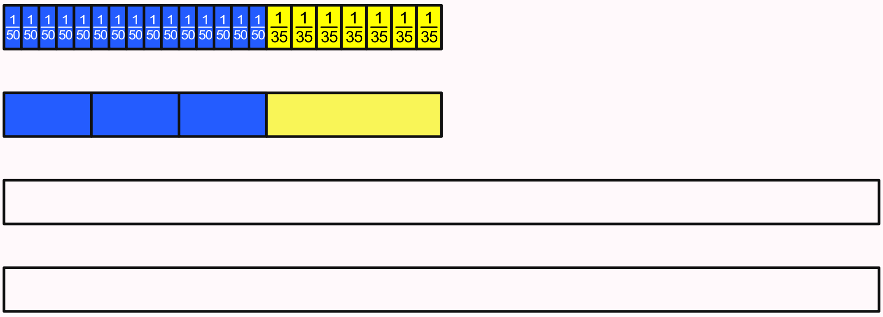
$\frac{7}{35} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 18 – Level 3

1. Goal?

$$\frac{15}{50} + \frac{7}{35}$$

2. Simplify?

$\frac{15}{50} =$

$\frac{7}{35} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 19 – Solution

1. Goal? We want to add the fractions $\mathbf{\frac{8}{12}}$ and $\mathbf{\frac{4}{21}}$.

2. Simplify?

$$\mathbf{\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3} \quad ; \quad \frac{4}{21}}$$

3. Least Common Denominator

$$\mathbf{\frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21} \; ; \; \frac{4}{21}}$$

4. Add

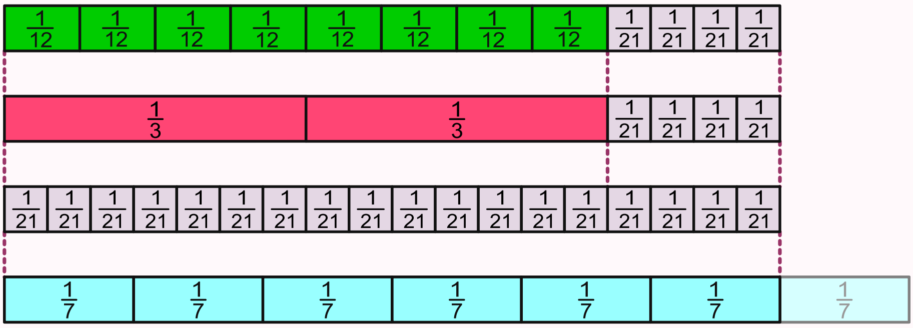
$$\mathbf{\frac{14}{21} + \frac{4}{21} = \frac{18}{21}}$$

5. Simplify?

$$\mathbf{\frac{18}{21} = \frac{18 \div 3}{21 \div 3} = \frac{6}{7}}$$

6. Result

$$\frac{8}{12}+\frac{4}{21} = \frac{8 \div 4}{12 \div 4}+\frac{4}{21} = \frac{2}{3}+\frac{4}{21} = \frac{2 \times 7}{3 \times 7}+\frac{4}{21} = \frac{14}{21}+\frac{4}{21} = \frac{18}{21} = \frac{18 \div 3}{21 \div 3} = \frac{6}{7}$$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Exercise 19 – Level 1

1. Goal?

$$\frac{8}{12} + \frac{4}{21}$$

2. Simplify?

$\frac{8}{12} =$

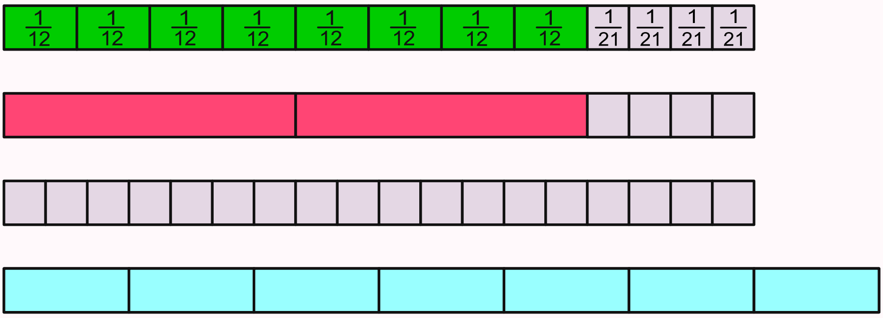
$\frac{4}{21} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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Exercise 19 – Level 2

1. Goal?

$$\frac{8}{12} + \frac{4}{21}$$

2. Simplify?

$\frac{8}{12} =$

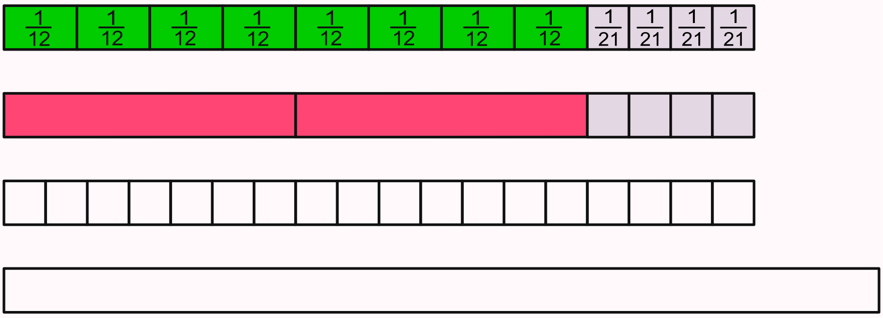
$\frac{4}{21} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 19 – Level 3

1. Goal?

$$\frac{8}{12}+\frac{4}{21}$$

2. Simplify?

$\frac{8}{12} =$

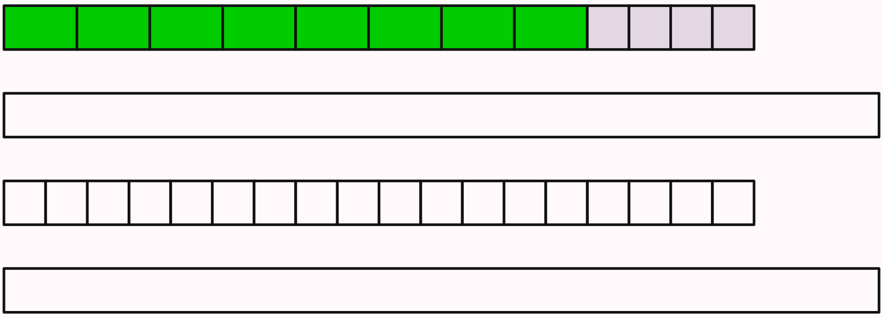
$\frac{4}{21} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 20 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{10}{16}}$ and $\mathbf{\frac{4}{20}}$.

2. Simplify?

$$\frac{10}{16} = \frac{10 \div 2}{16 \div 2} = \frac{5}{8} \quad ; \quad \frac{4}{20} = \frac{4 \div 4}{20 \div 4} = \frac{1}{5}$$

3. Least Common Denominator

$$\frac{5}{8} = \frac{5 \times 5}{8 \times 5} = \frac{25}{40} \; ; \; \frac{1}{5} = \frac{1 \times 8}{5 \times 8} = \frac{8}{40}$$

4. Add

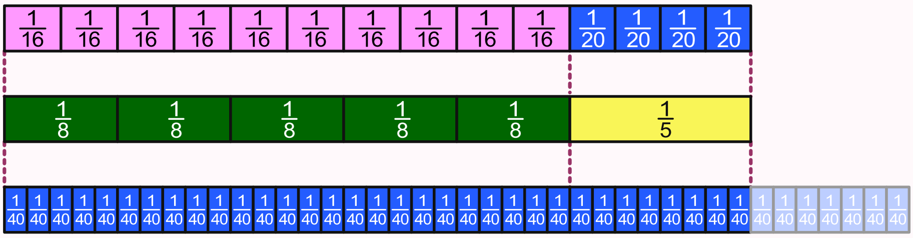
$$\frac{25}{40} + \frac{8}{40} = \frac{33}{40}$$

5. Simplify?

$\mathbf{\frac{33}{40}}$ cannot be simplified.

6. Result

$$\frac{10}{16} + \frac{4}{20} = \frac{10 \div 2}{16 \div 2} + \frac{4 \div 4}{20 \div 4} = \frac{5}{8} + \frac{1}{5} = \frac{5 \times 5}{8 \times 5} + \frac{1 \times 8}{5 \times 8} = \frac{25}{40} + \frac{8}{40} = \frac{33}{40}$$



Exercise 20 – Level 1

1. Goal?

$$\frac{10}{16} + \frac{4}{20}$$

2. Simplify?

$\frac{10}{16} =$

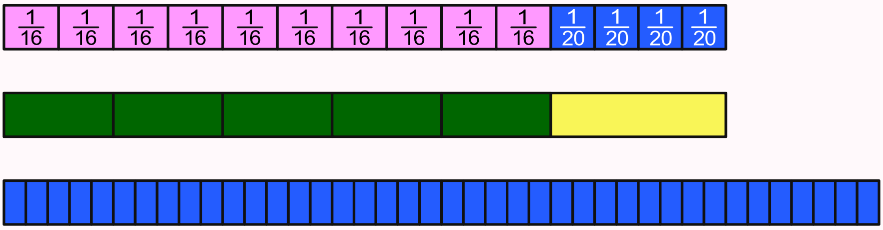
$\frac{4}{20} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 20 – Level 2

1. Goal?

$$\frac{10}{16} + \frac{4}{20}$$

2. Simplify?

$\frac{10}{16} =$

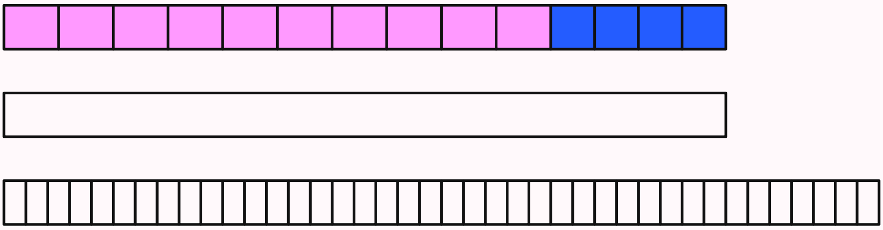
$\frac{4}{20} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 20 – Level 3

1. Goal?

$$\frac{\mathbf{10}}{\mathbf{16}} + \frac{\mathbf{4}}{\mathbf{20}}$$

2. Simplify?

$\frac{\mathbf{10}}{\mathbf{16}} =$

$\frac{\mathbf{4}}{\mathbf{20}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 21 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{24}{45}}$ and $\mathbf{\frac{6}{36}}$.

2. Simplify?

$$\frac{24}{45} = \frac{24 \div 3}{45 \div 3} = \frac{8}{15} \quad ; \quad \frac{6}{36} = \frac{6 \div 6}{36 \div 6} = \frac{1}{6}$$

3. Least Common Denominator

$$\frac{8}{15} = \frac{8 \times 2}{15 \times 2} = \frac{16}{30} \ ; \ \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}$$

4. Add

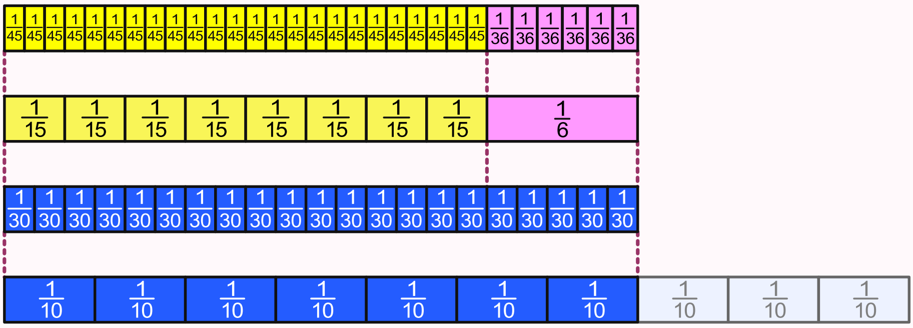
$$\frac{16}{30} + \frac{5}{30} = \frac{21}{30}$$

5. Simplify?

$$\frac{21}{30} = \frac{21 \div 3}{30 \div 3} = \frac{7}{10}$$

6. Result

$$\frac{24}{45}+\frac{6}{36} = \frac{24 \div 3}{45 \div 3}+\frac{6 \div 6}{36 \div 6} = \frac{8}{15}+\frac{1}{6} = \frac{8 \times 2}{15 \times 2}+\frac{1 \times 5}{6 \times 5} = \frac{16}{30}+\frac{5}{30} = \frac{21}{30} = \frac{21 \div 3}{30 \div 3} = \frac{7}{10}$$



Exercise 21 – Level 1

1. Goal?

$$\frac{24}{45}+\frac{6}{36}$$

2. Simplify?

$\frac{24}{45} =$

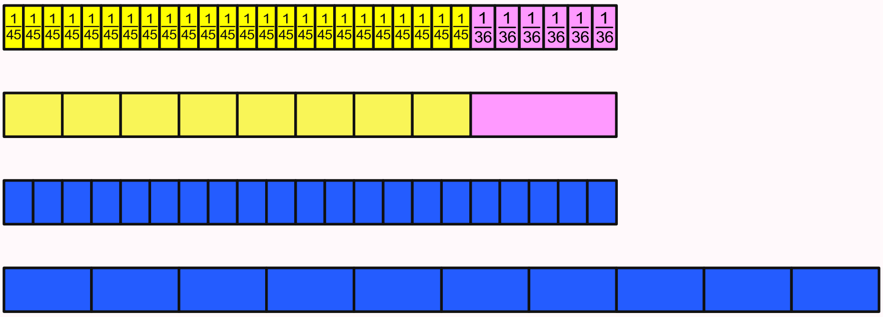
$\frac{6}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 21 – Level 2

1. Goal?

$$\frac{24}{45} + \frac{6}{36}$$

2. Simplify?

$\frac{24}{45} =$

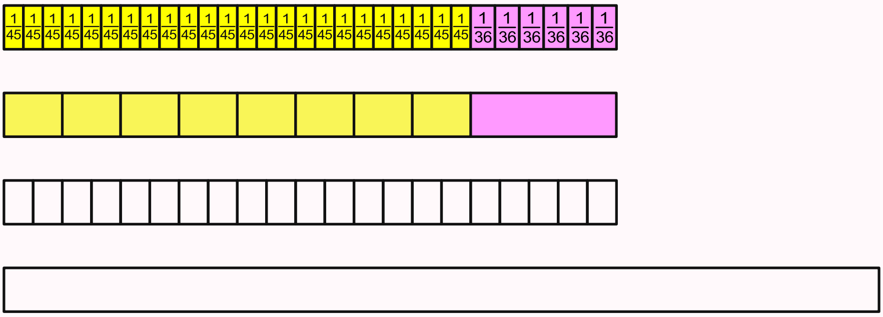
$\frac{6}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 21 – Level 3

1. Goal?

$$\frac{24}{45} + \frac{6}{36}$$

2. Simplify?

$\frac{24}{45} =$

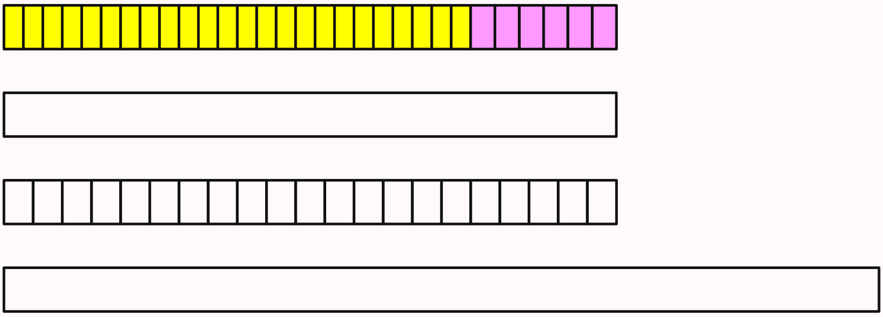
$\frac{6}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 22 – Solution

1. Goal?

We want to add the fractions $\frac{35}{42}$ and $\frac{15}{54}$.

2. Simplify?

$$\frac{35}{42} = \frac{35 \div 7}{42 \div 7} = \frac{5}{6} \quad ; \quad \frac{15}{54} = \frac{15 \div 3}{54 \div 3} = \frac{5}{18}$$

3. Least Common Denominator

$$\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18} \; ; \; \frac{5}{18}$$

4. Add

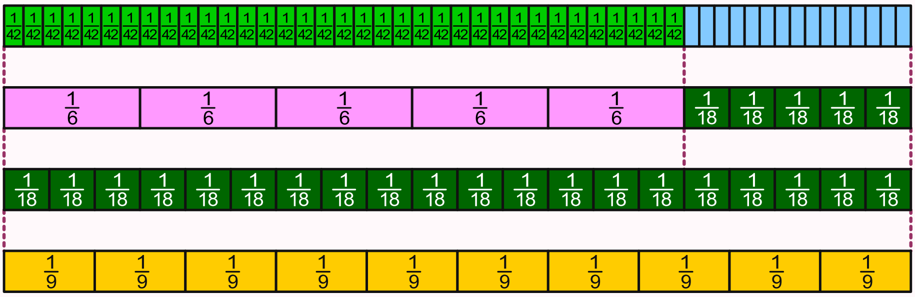
$$\frac{15}{18} + \frac{5}{18} = \frac{20}{18}$$

5. Simplify?

$$\frac{20}{18} = \frac{20 \div 2}{18 \div 2} = \frac{10}{9}$$

6. Result

$$\frac{35}{42}+\frac{15}{54} = \frac{35 \div 7}{42 \div 7}+\frac{15 \div 3}{54 \div 3} = \frac{5}{6}+\frac{5}{18} = \frac{5 \times 3}{6 \times 3}+\frac{5}{18} = \frac{15}{18}+\frac{5}{18} = \frac{20}{18} = \frac{20 \div 2}{18 \div 2} = \frac{10}{9}$$



Exercise 22 – Level 1

1. Goal?

$$\frac{35}{42} + \frac{15}{54}$$

2. Simplify?

$\frac{35}{42} =$

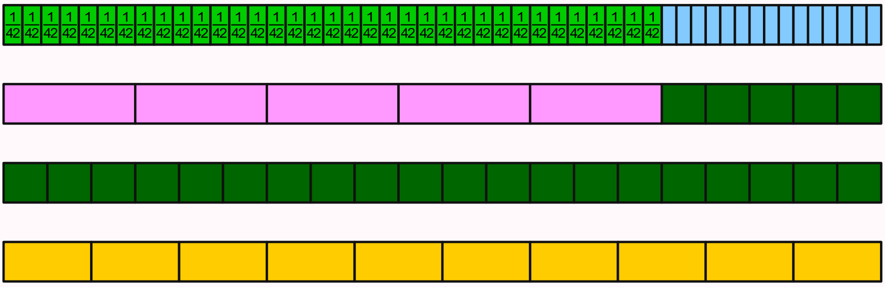
$\frac{15}{54} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 22 – Level 2

1. Goal?

$$\frac{35}{42} + \frac{15}{54}$$

2. Simplify?

$\frac{35}{42} =$

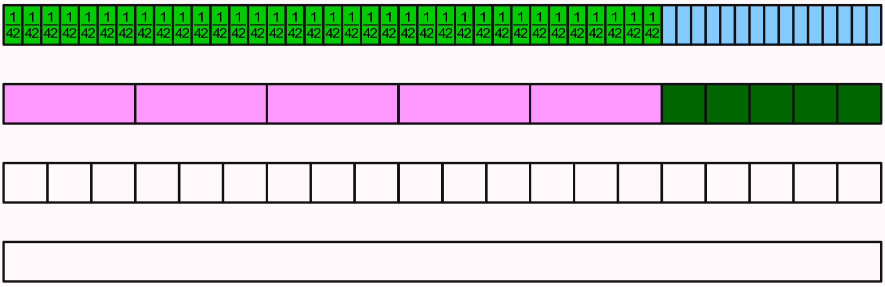
$\frac{15}{54} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 22 – Level 3

1. Goal?

$$\frac{35}{42} + \frac{15}{54}$$

2. Simplify?

$\frac{35}{42} =$

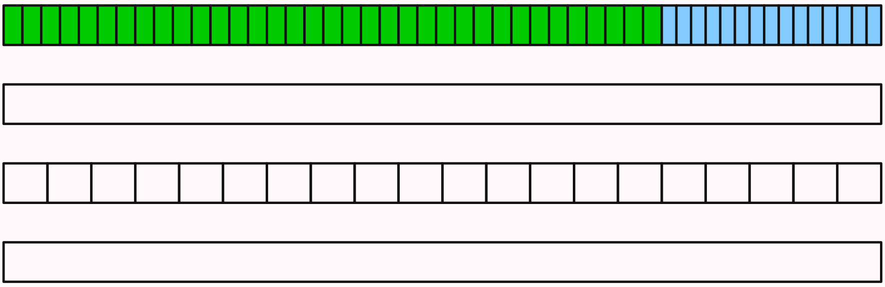
$\frac{15}{54} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 23 – Solution

1. Goal?

We want to add the fractions $\frac{10}{12}$ and $\frac{4}{40}$.

2. Simplify?

$$\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \frac{5}{6} \quad ; \quad \frac{4}{40} = \frac{4 \div 4}{40 \div 4} = \frac{1}{10}$$

3. Least Common Denominator

$$\frac{5}{6} = \frac{5 \times 5}{6 \times 5} = \frac{25}{30} \quad ; \quad \frac{1}{10} = \frac{1 \times 3}{10 \times 3} = \frac{3}{30}$$

4. Add

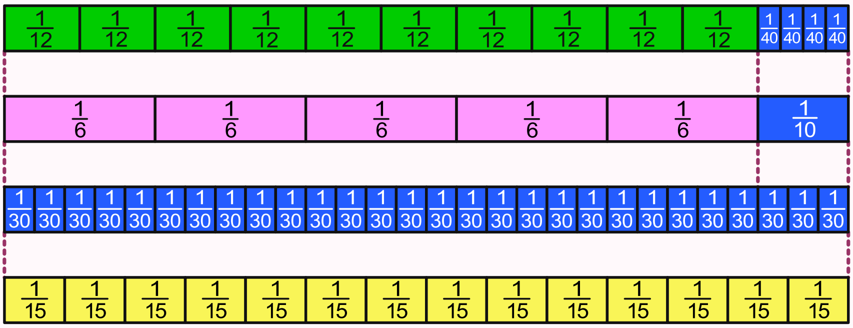
$$\frac{25}{30} + \frac{3}{30} = \frac{28}{30}$$

5. Simplify?

$$\frac{28}{30} = \frac{28 \div 2}{30 \div 2} = \frac{14}{15}$$

6. Result

$$\frac{10}{12}+\frac{4}{40} = \frac{10 \div 2}{12 \div 2}+\frac{4 \div 4}{40 \div 4} = \frac{5}{6}+\frac{1}{10} = \frac{5 \times 5}{6 \times 5}+\frac{1 \times 3}{10 \times 3} = \frac{25}{30}+\frac{3}{30} = \frac{28}{30} = \frac{28 \div 2}{30 \div 2} = \frac{14}{15}$$



Exercise 23 – Level 1

1. Goal?

$$\frac{10}{12} + \frac{4}{40}$$

2. Simplify?

$\frac{10}{12} =$

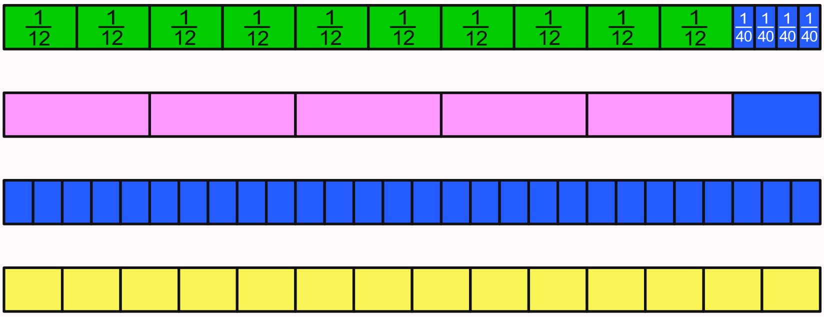
$\frac{4}{40} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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$\frac{1}{40}$

Exercise 23 – Level 2

1. Goal?

$$\frac{10}{12} + \frac{4}{40}$$

2. Simplify?

$\frac{10}{12} =$

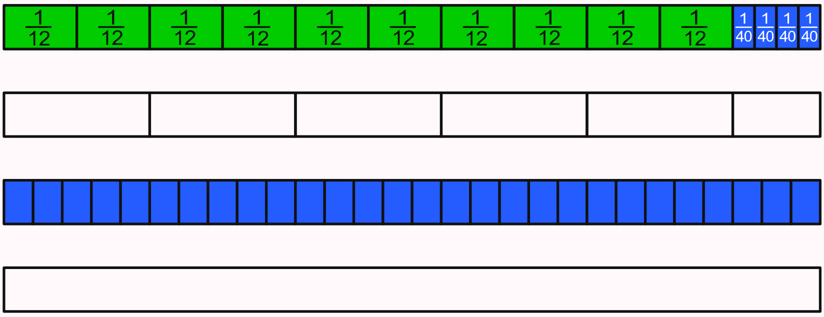
$\frac{4}{40} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 23 – Level 3

1. Goal?

$$\frac{10}{12} + \frac{4}{40}$$

2. Simplify?

$\frac{10}{12} =$

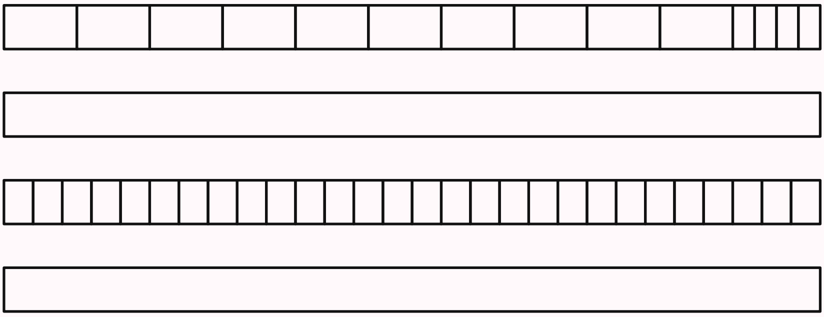
$\frac{4}{40} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 24 – Solution

1. Goal? We want to add the fractions $\mathbf{\frac{10}{24}}$ and $\mathbf{\frac{9}{36}}$.

2. Simplify? $\mathbf{\frac{10}{24} = \frac{10 \div 2}{24 \div 2} = \frac{5}{12} \quad \frac{9}{36} = \frac{9 \div 9}{36 \div 9} = \frac{1}{4}}$

3. Least Common Denominator

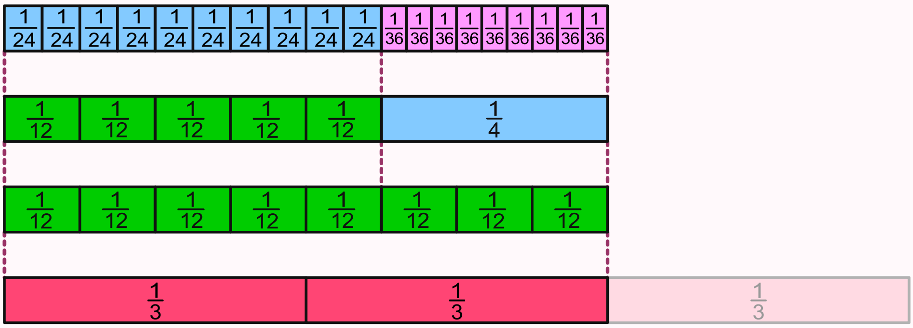
$$\mathbf{\frac{5}{12} \;;\; \frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}}$$

4. Add $\mathbf{\frac{5}{12} + \frac{3}{12} = \frac{8}{12}}$

5. Simplify? $\mathbf{\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}}$

6. Result

$$\frac{10}{24}+\frac{9}{36} = \frac{10 \div 2}{24 \div 2}+\frac{9 \div 9}{36 \div 9} = \frac{5}{12}+\frac{1}{4} = \frac{5}{12}+\frac{1 \times 3}{4 \times 3} = \frac{5}{12}+\frac{3}{12} = \frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$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Exercise 24 – Level 1

1. Goal?

$$\frac{\mathbf{10}}{\mathbf{24}} + \frac{\mathbf{9}}{\mathbf{36}}$$

2. Simplify?

$\frac{\mathbf{10}}{\mathbf{24}} =$

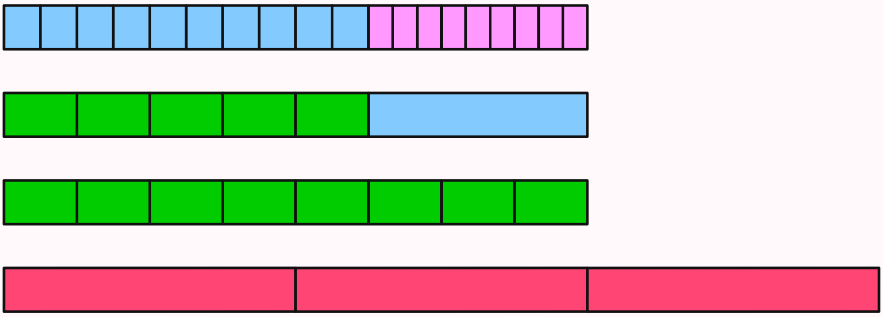
$\frac{\mathbf{9}}{\mathbf{36}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 24 – Level 2

1. Goal?

$$\frac{10}{24} + \frac{9}{36}$$

2. Simplify?

$\frac{10}{24} =$

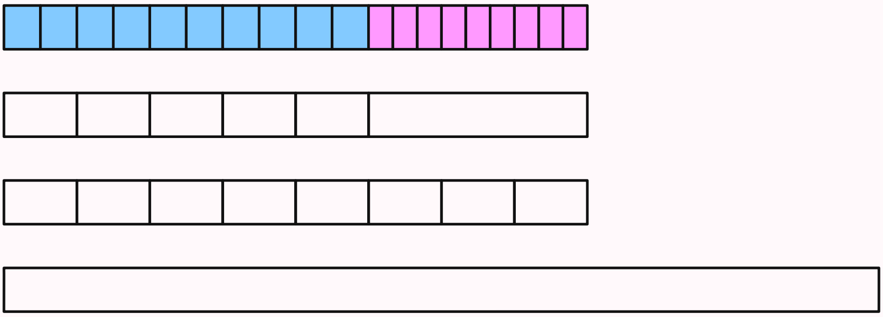
$\frac{9}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 24 – Level 3

1. Goal?

$$\mathbf{\frac{10}{24}} + \mathbf{\frac{9}{36}}$$

2. Simplify?

$\mathbf{\frac{10}{24}} =$

$\mathbf{\frac{9}{36}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 25 – Solution

1. Goal?

We want to add the fractions $\frac{9}{21}$ and $\frac{8}{32}$.

2. Simplify?

$$\frac{9}{21} = \frac{9 \div 3}{21 \div 3} = \frac{3}{7} \quad ; \quad \frac{8}{32} = \frac{8 \div 8}{32 \div 8} = \frac{1}{4}$$

3. Least Common Denominator

$$\frac{3}{7} = \frac{3 \times 4}{7 \times 4} = \frac{12}{28} \quad ; \quad \frac{1}{4} = \frac{1 \times 7}{4 \times 7} = \frac{7}{28}$$

4. Add

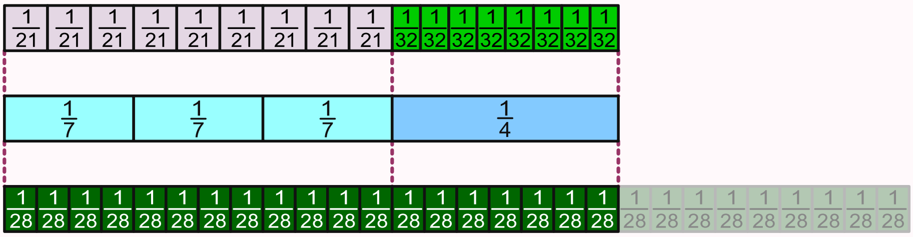
$$\frac{12}{28} + \frac{7}{28} = \frac{19}{28}$$

5. Simplify?

$\frac{19}{28}$ cannot be simplified.

6. Result

$$\frac{9}{21} + \frac{8}{32} = \frac{3 \div 3}{21 \div 3} + \frac{8 \div 8}{32 \div 8} = \frac{3}{7} + \frac{1}{4} = \frac{3 \times 4}{7 \times 4} + \frac{1 \times 7}{4 \times 7} = \frac{12}{28} + \frac{7}{28} = \frac{19}{28}$$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Exercise 25 – Level 1

1. Goal?

$$\frac{9}{21} + \frac{8}{32}$$

2. Simplify?

$\frac{9}{21} =$

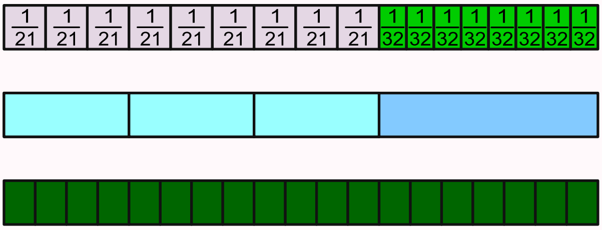
$\frac{8}{32} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 25 – Level 2

1. Goal?

$$\frac{9}{21} + \frac{8}{32}$$

2. Simplify?

$\frac{9}{21} =$

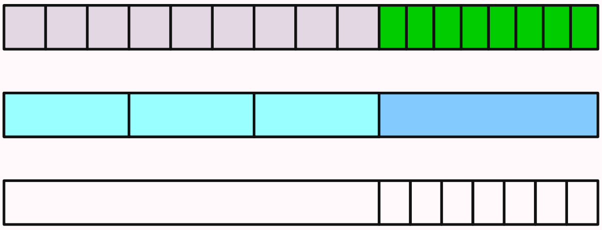
$\frac{8}{32} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 25 – Level 3

1. Goal?

$$\frac{9}{21} + \frac{8}{32}$$

2. Simplify?

$\frac{9}{21} =$

$\frac{8}{32} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result

Exercise 26 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{9}{24}}$ and $\mathbf{\frac{15}{27}}$.

2. Simplify?

$$\frac{9}{24} = \frac{9 \div 3}{24 \div 3} = \frac{3}{8} \quad ; \quad \frac{15}{27} = \frac{15 \div 3}{27 \div 3} = \frac{5}{9}$$

3. Least Common Denominator

$$\frac{3}{8} = \frac{3 \times 9}{8 \times 9} = \frac{27}{72} \quad ; \quad \frac{5}{9} = \frac{5 \times 8}{9 \times 8} = \frac{40}{72}$$

4. Add

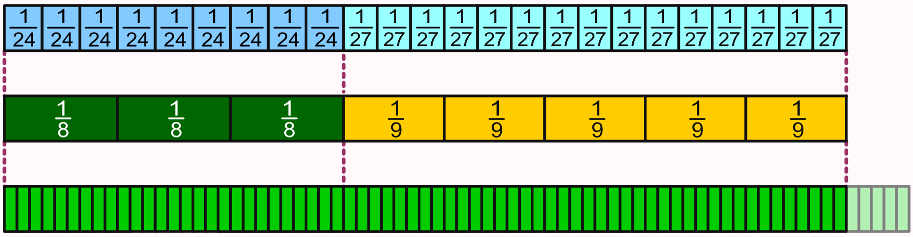
$$\frac{27}{72} + \frac{40}{72} = \frac{67}{72}$$

5. Simplify?

$\mathbf{\frac{67}{72}}$ cannot be simplified.

6. Result

$$\frac{9}{24} + \frac{15}{27} = \frac{9 \div 3}{24 \div 3} + \frac{15 \div 3}{27 \div 3} = \frac{3}{8} + \frac{5}{9} = \frac{3 \times 9}{8 \times 9} + \frac{5 \times 8}{9 \times 8} = \frac{27}{72} + \frac{40}{72} = \frac{67}{72}$$



Exercise 26 – Level 1

1. Goal?

$$\frac{9}{24}+\frac{15}{27}$$

2. Simplify?

$\frac{9}{24} =$

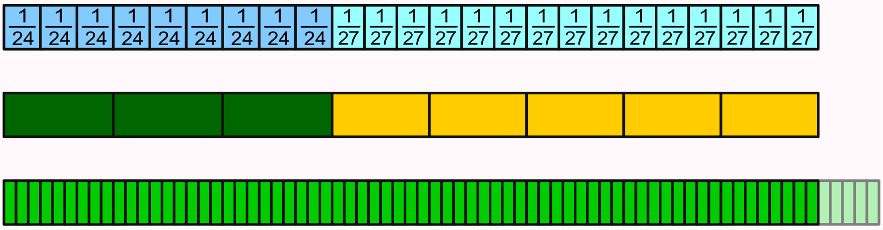
$\frac{15}{27} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 26 – Level 2

1. Goal?

$$\frac{9}{24} + \frac{15}{27}$$

2. Simplify?

$\frac{9}{24} =$

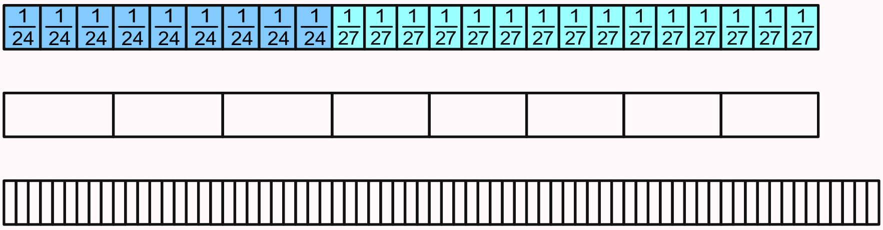
$\frac{15}{27} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 26 – Level 3

1. Goal?

$$\frac{9}{24} + \frac{15}{27}$$

2. Simplify?

$\frac{9}{24} =$

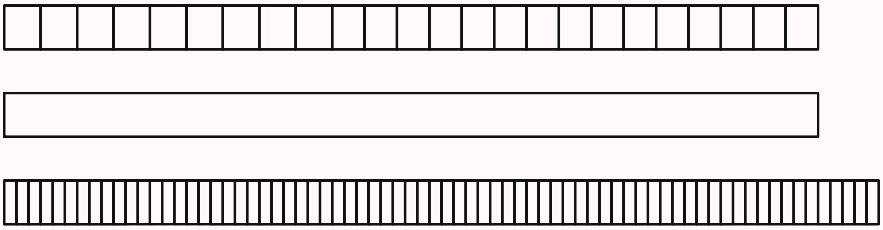
$\frac{15}{27} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 27 – Solution

1. Goal?

We want to add the fractions $\frac{21}{56}$ and $\frac{10}{16}$.

2. Simplify?

$$\frac{21}{56} = \frac{21 \div 7}{56 \div 7} = \frac{3}{8} \quad \text{and} \quad \frac{10}{16} = \frac{10 \div 2}{16 \div 2} = \frac{5}{8}$$

3. Least Common Denominator

$$\frac{3}{8} \; ; \; \frac{5}{8}$$

4. Add

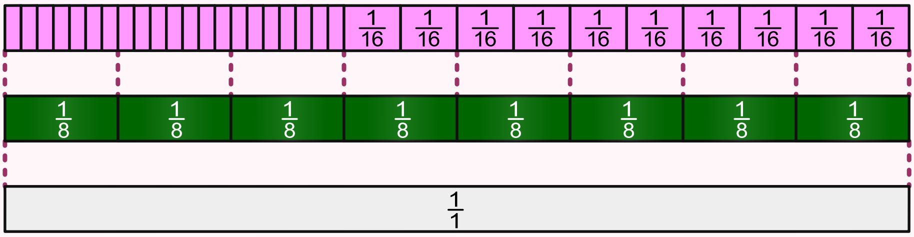
$$\frac{3}{8} + \frac{5}{8} = \frac{8}{8}$$

5. Simplify?

$$\frac{8}{8} = \frac{8 \div 8}{8 \div 8} = \frac{1}{1} = 1$$

6. Result

$$\frac{21}{56} + \frac{10}{16} = \frac{21 \div 7}{56 \div 7} + \frac{10 \div 2}{16 \div 2} = \frac{3}{8} + \frac{5}{8} = \frac{8}{8} = \frac{8 \div 8}{8 \div 8} = \frac{1}{1} = 1$$



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Exercise 27 – Level 1

1. Goal?

$$\frac{21}{56} + \frac{10}{16}$$

2. Simplify?

$\frac{21}{56} =$

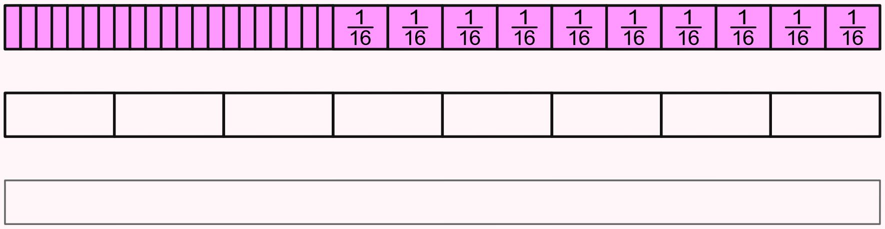
$\frac{10}{16} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 27 – Level 2

1. Goal?

$$\frac{21}{56} + \frac{10}{16}$$

2. Simplify?

$\frac{21}{56} =$

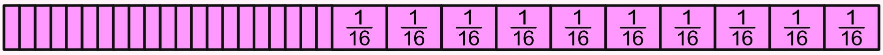
$\frac{10}{16} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 27 – Level 3

1. Goal?

$$\frac{21}{56} + \frac{10}{16}$$

2. Simplify?

$\frac{21}{56} =$

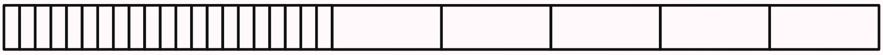
$\frac{10}{16} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



Exercise 28 – Solution

1. Goal? We want to add the fractions $\mathbf{\frac{6}{21}}$ and $\mathbf{\frac{6}{28}}$.

2. Simplify? $\mathbf{\frac{6}{21} = \frac{6 \div 3}{21 \div 3} = \frac{2}{7}}$ and $\mathbf{\frac{6}{28} = \frac{6 \div 2}{28 \div 2} = \frac{3}{14}}$

3. Least Common Denominator

$$\mathbf{\frac{2}{7} = \frac{2 \times 2}{7 \times 2} = \frac{4}{14}\ ;\quad \frac{3}{14}}$$

4. Add

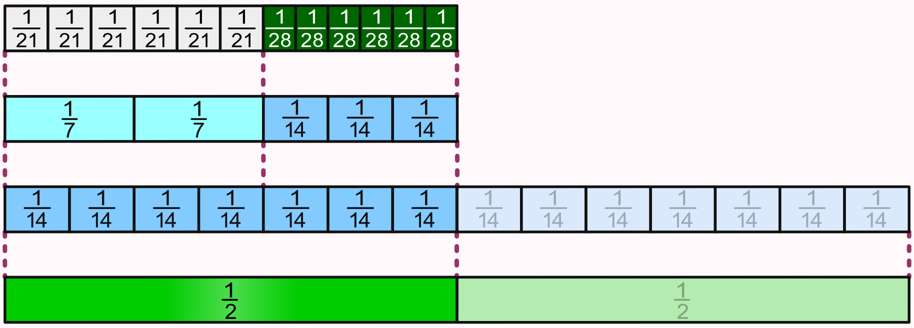
$$\mathbf{\frac{4}{14} + \frac{3}{14} = \frac{7}{14}}$$

5. Simplify?

$$\mathbf{\frac{7}{14} = \frac{7 \div 7}{14 \div 7} = \frac{1}{2}}$$

6. Result

$$\frac{6}{21}+\frac{6}{28} = \frac{6 \div 3}{21 \div 3}+\frac{6 \div 2}{28 \div 2} = \frac{2}{7}+\frac{3}{14} = \frac{2 \times 2}{7 \times 2}+\frac{3}{14} = \frac{4}{14}+\frac{3}{14} = \frac{7}{14} = \frac{7 \div 7}{14 \div 7} = \frac{1}{2}$$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Exercise 28 – Level 1

1. Goal?

$$\frac{6}{21} + \frac{6}{28}$$

2. Simplify?

$\frac{6}{21} =$

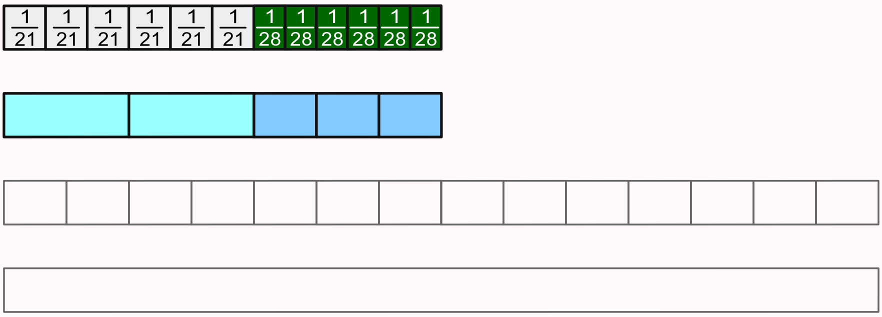
$\frac{6}{28} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 28 – Level 2

1. Goal?

$$\frac{6}{21} + \frac{6}{28}$$

2. Simplify?

$\frac{6}{21} =$

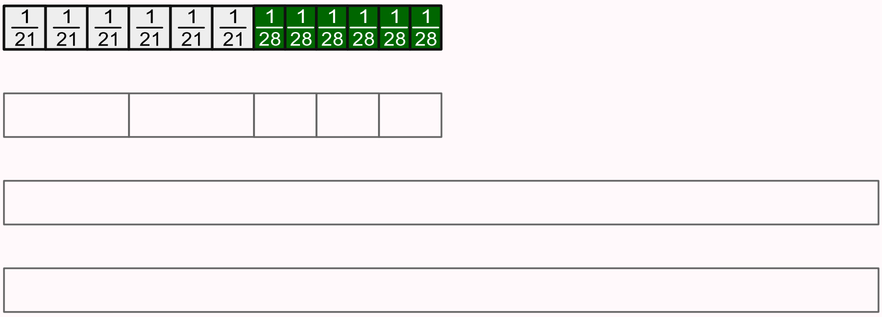
$\frac{6}{28} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 28 – Level 3

1. Goal?

$$\frac{6}{21} + \frac{6}{28}$$

2. Simplify?

$\frac{6}{21} =$

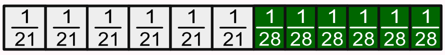
$\frac{6}{28} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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Exercise 29 – Solution

1. Goal? We want to add the fractions $\mathbf{\frac{12}{45}}$ and $\mathbf{\frac{10}{12}}$.

2. Simplify? $\mathbf{\frac{12}{45} = \frac{12 \div 3}{45 \div 3} = \frac{4}{15}}$ and $\mathbf{\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \frac{5}{6}}$

3. Least Common Denominator

$$\mathbf{\frac{4}{15} = \frac{4 \times 2}{15 \times 2} = \frac{8}{30}\ ;\ \ \frac{5}{6} = \frac{5 \times 5}{6 \times 5} = \frac{25}{30}}$$

4. Add

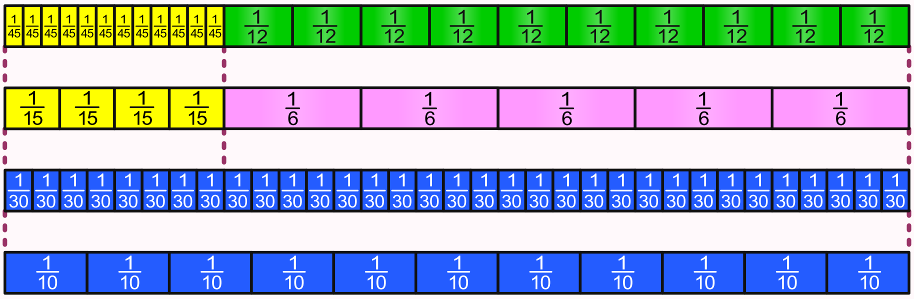
$$\mathbf{\frac{8}{30} + \frac{25}{30} = \frac{33}{30}}$$

5. Simplify?

$$\mathbf{\frac{33}{30} = \frac{33 \div 3}{30 \div 3} = \frac{11}{10}}$$

6. Result

$$\frac{12}{45}+\frac{10}{12} = \frac{12 \div 3}{45 \div 3}+\frac{10 \div 2}{12 \div 2} = \frac{4}{15}+\frac{5}{6} = \frac{4 \times 2}{15 \times 2}+\frac{5 \times 5}{6 \times 5} = \frac{8}{30}+\frac{25}{30} = \frac{33}{30} = \frac{33 \div 3}{30 \div 3} = \frac{11}{10}$$



Exercise 29 – Level 1

1. Goal?

$$\frac{12}{45} + \frac{10}{12}$$

2. Simplify?

$\frac{12}{45} =$

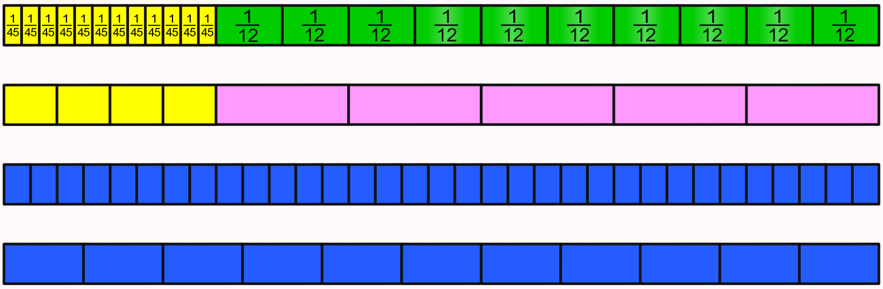
$\frac{10}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 29 – Level 2

1. Goal?

$$\frac{\mathbf{12}}{\mathbf{45}} + \frac{\mathbf{10}}{\mathbf{12}}$$

2. Simplify?

$\frac{\mathbf{12}}{\mathbf{45}} =$

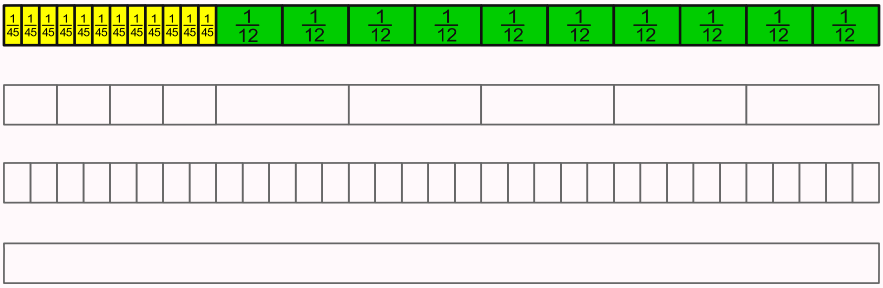
$\frac{\mathbf{10}}{\mathbf{12}} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 29 – Level 3

1. Goal?

$$\frac{12}{45} + \frac{10}{12}$$

2. Simplify?

$\frac{12}{45} =$

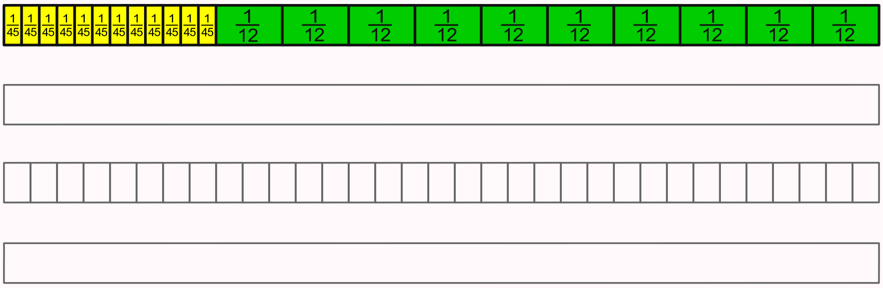
$\frac{10}{12} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 30 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{6}{27}}$ and $\mathbf{\frac{1}{36}}$.

2. Simplify?

$$\mathbf{\frac{6}{27} = \frac{6 \div 3}{27 \div 3} = \frac{2}{9}} \quad \text{and} \quad \mathbf{\frac{1}{36}}$$

3. Least Common Denominator

$$\mathbf{\frac{2}{9} = \frac{2 \times 4}{9 \times 4} = \frac{8}{36}} \ ; \quad \mathbf{\frac{1}{36}}$$

4. Add

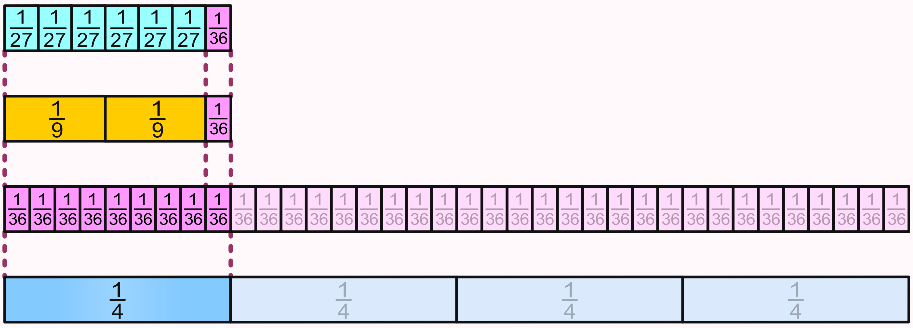
$$\mathbf{\frac{8}{36} + \frac{1}{36} = \frac{9}{36}}$$

5. Simplify?

$$\mathbf{\frac{9}{36} = \frac{9 \div 9}{36 \div 9} = \frac{1}{4}}$$

6. Result

$$\frac{6}{27}+\frac{1}{36} = \frac{6 \div 3}{27 \div 3}+\frac{1}{36} = \frac{2}{9}+\frac{1}{36} = \frac{2 \times 4}{9 \times 4}+\frac{1}{36} = \frac{8}{36}+\frac{1}{36} = \frac{9}{36} = \frac{9 \div 9}{36 \div 9} = \frac{1}{4}$$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Exercise 30 – Level 1

1. Goal?

$$\frac{6}{27} + \frac{1}{36}$$

2. Simplify?

$\frac{6}{27} =$

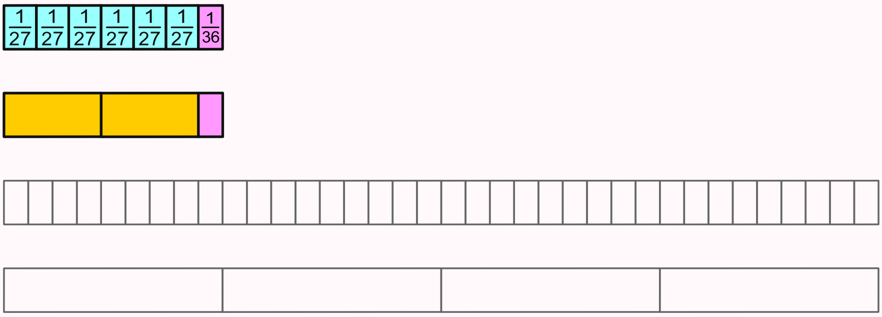
$\frac{1}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 30 – Level 2

1. Goal?

$$\frac{6}{27} + \frac{1}{36}$$

2. Simplify?

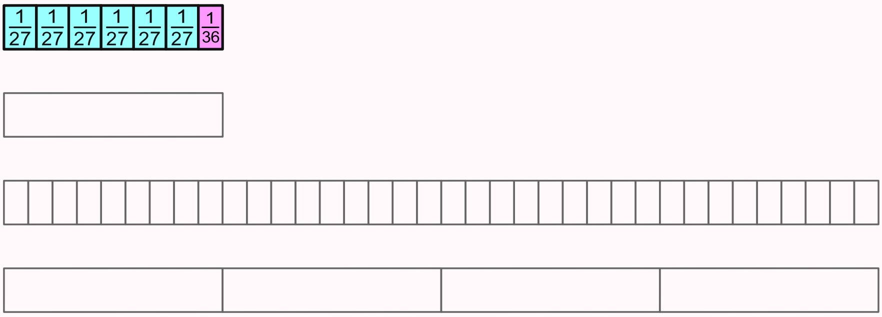
$\frac{6}{27} =$ $\frac{1}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 30 – Level 3

1. Goal?

$$\frac{6}{27} + \frac{1}{36}$$

2. Simplify?

$\frac{6}{27} =$

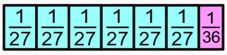
$\frac{1}{36} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 31 – Solution

1. Goal?

We want to add the fractions $\frac{6}{105}$ and $\frac{27}{42}$.

2. Simplify?

$$\frac{6}{105} = \frac{6 \div 3}{105 \div 3} = \frac{2}{35} \quad \text{and} \quad \frac{27}{42} = \frac{27 \div 3}{42 \div 3} = \frac{9}{14}$$

3. Least Common Denominator

$$\frac{2}{35} = \frac{2 \times 2}{35 \times 2} = \frac{4}{70} \; ; \quad \frac{9}{14} = \frac{9 \times 5}{14 \times 5} = \frac{45}{70}$$

4. Add

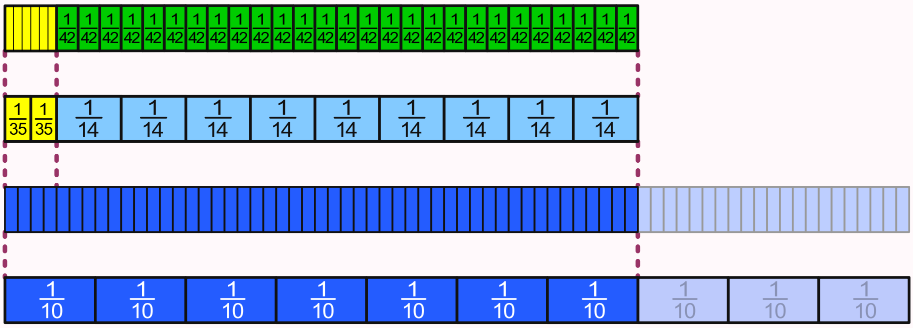
$$\frac{4}{70} + \frac{45}{70} = \frac{49}{70}$$

5. Simplify?

$$\frac{49}{70} = \frac{49 \div 7}{70 \div 7} = \frac{7}{10}$$

6. Result

$$\frac{6}{105}+\frac{27}{42} = \frac{6 \div 3}{105 \div 3}+\frac{27 \div 3}{42 \div 3} = \frac{2}{35}+\frac{9}{14} = \frac{2 \times 2}{35 \times 2}+\frac{9 \times 5}{14 \times 5} = \frac{4}{70}+\frac{45}{70} = \frac{49}{70} = \frac{49 \div 7}{70 \div 7} = \frac{7}{10}$$



Exercise 31 – Level 1

1. Goal?

$$\frac{6}{105} + \frac{27}{42}$$

2. Simplify?

$\frac{6}{105} =$

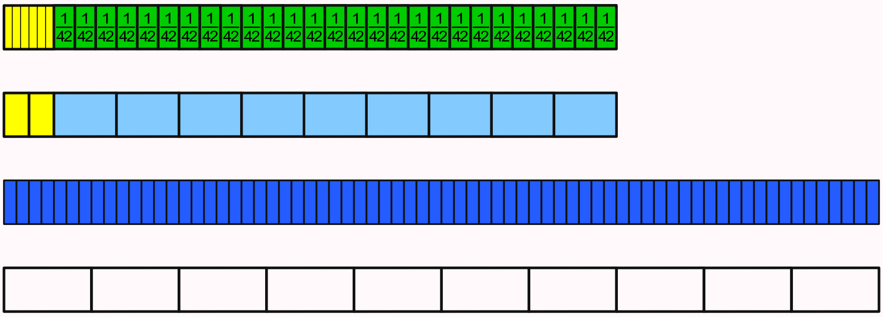
$\frac{27}{42} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 31 – Level 2

1. Goal?

$$\frac{6}{105} + \frac{27}{42}$$

2. Simplify?

$\frac{6}{105} =$

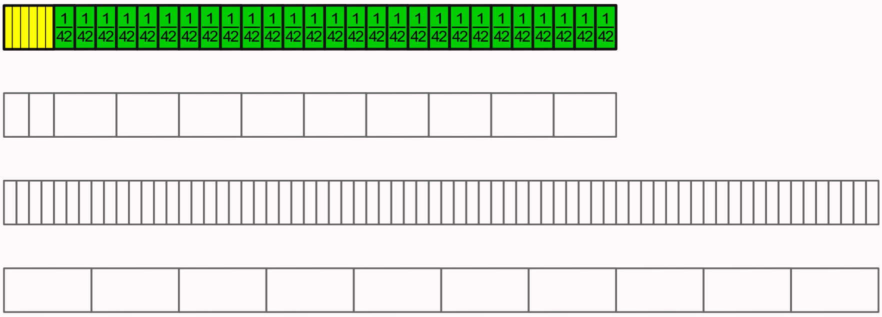
$\frac{27}{42} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 31 – Level 3

1. Goal?

$$\frac{6}{105} + \frac{27}{42}$$

2. Simplify?

$\frac{6}{105} =$

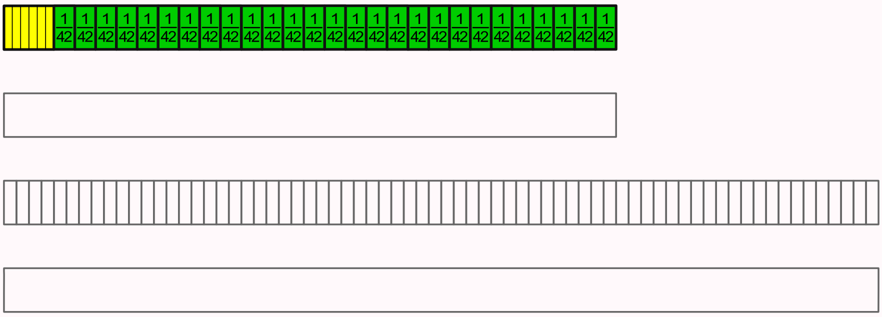
$\frac{27}{42} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 32 – Solution

1. Goal?

We want to add the fractions $\mathbf{\frac{8}{42}}$ and $\mathbf{\frac{26}{39}}$.

2. Simplify?

$$\frac{8}{42} = \frac{8 \div 2}{42 \div 2} = \frac{4}{21} \quad \text{and} \quad \frac{26}{39} = \frac{26 \div 13}{39 \div 13} = \frac{2}{3}$$

3. Least Common Denominator

$$\frac{4}{21} \ ; \quad \frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$$

4. Add

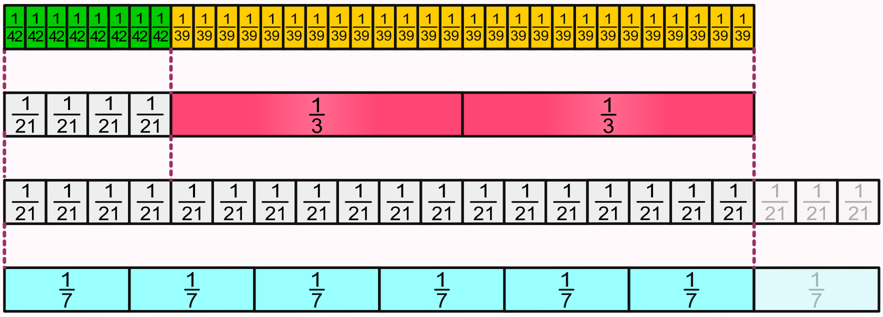
$$\frac{4}{21} + \frac{14}{21} = \frac{18}{21}$$

5. Simplify?

$$\frac{18}{21} = \frac{18 \div 3}{21 \div 3} = \frac{6}{7}$$

6. Result

$$\frac{8}{42}+\frac{26}{39} = \frac{8 \div 2}{42 \div 2}+\frac{26 \div 13}{39 \div 13} = \frac{4}{21}+\frac{2}{3} = \frac{4}{21}+\frac{2 \times 7}{3 \times 7} = \frac{4}{21}+\frac{14}{21} = \frac{18}{21} = \frac{18 \div 3}{21 \div 3} = \frac{6}{7}$$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Exercise 32 – Level 1

1. Goal?

$$\frac{8}{42} + \frac{26}{39}$$

2. Simplify?

$\frac{8}{42} =$

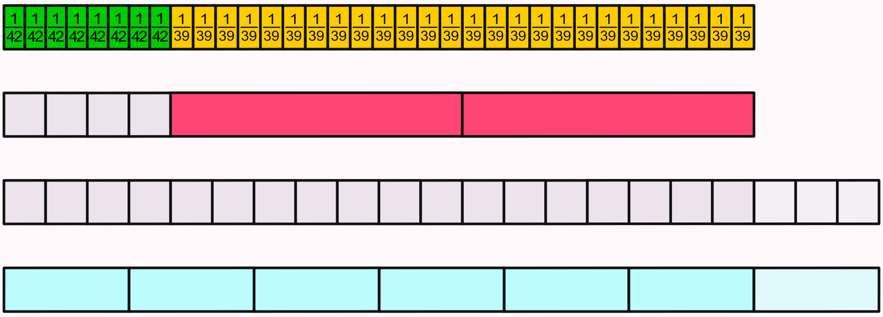
$\frac{26}{39} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 32 – Level 2

1. Goal?

$$\frac{8}{42} + \frac{26}{39}$$

2. Simplify?

$\frac{8}{42} =$

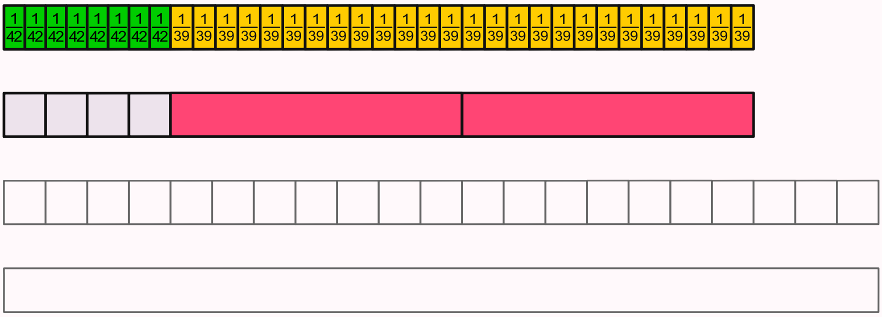
$\frac{26}{39} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result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Exercise 32 – Level 3

1. Goal?

$$\frac{8}{42} + \frac{26}{39}$$

2. Simplify?

$\frac{8}{42} =$

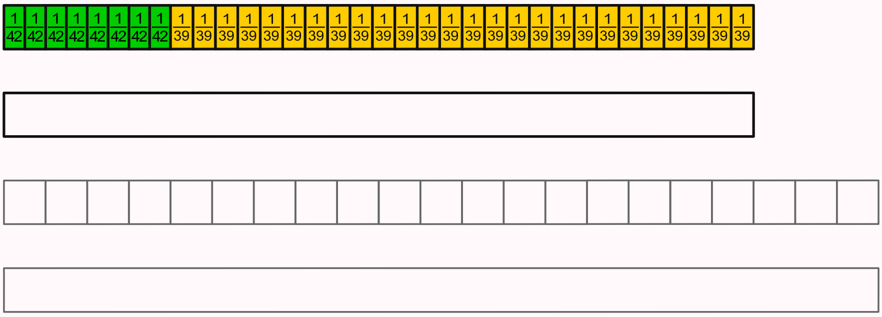
$\frac{26}{39} =$

3. Least Common Denominator

4. Add

5. Simplify?

6. Result



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