

Find the LCM for the following sets of numbers:

a) 2 and 5 10

b) 3 and 4 12

c) 3 and 5 15

d) 4 and 6 12

e) 6 and 8 24

f) 3 and 9 9

g) 4 and 10 20

h) 6 and 10 30

i) 3, 4 and 6 12

j) 2, 5 and 6 30

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Adding and Subtracting Mixed Numbers

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So far we have just added or subtracted proper fractions. Some of these gave answers which are mixed numbers.

We are now going to look at adding and subtracting mixed numbers.

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The method I'm going to show you isn't necessarily the quickest method, but if you can master this method it will work for the addition and subtraction of ALL fractions.

With experience you will develop techniques that will speed up the process.

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The first thing we are going to do is convert the mixed numbers into improper fractions.

Can you remember how to do that?

Whole # \times Denominator and add the numerator. This gives the "new" numerator.

The denominator stays the same.

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To convert a mixed number into an improper fraction you have to multiply the whole number by the denominator and then add the numerator. This gives you the numerator of your improper fraction. The denominator will stay the same.

Examples:

$$\begin{aligned} 2\frac{1}{3} \\ &= \frac{(2 \times 3) + 1}{3} \\ &= \frac{7}{3} \end{aligned}$$

$$\begin{aligned} 3\frac{2}{5} \\ &= \frac{(3 \times 5) + 2}{5} \\ &= \frac{17}{5} \end{aligned}$$

$$\begin{aligned} 6\frac{3}{7} \\ &= \frac{(6 \times 7) + 3}{7} \\ &= \frac{45}{7} \end{aligned}$$

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Next we have to find a common denominator for our fractions. We have to create equivalent fractions that have the same denominator as each other.

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Now we are in a position to then add (or subtract) the numerators as necessary to find the answer.

Finally we need to simplify the answer as best we can, by turning it back into a mixed number and reducing the fraction part if possible.

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Examples:

$$\begin{aligned}
 & 2\frac{1}{2} + 3\frac{2}{3} \\
 &= \frac{(2 \times 2) + 1}{2} + \frac{(3 \times 3) + 2}{3} \\
 &= \frac{5 \times 3}{2 \times 3} + \frac{11 \times 2}{3 \times 2} \\
 &= \frac{15}{6} + \frac{22}{6} \\
 &= \frac{37}{6} = 6\frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 & 4\frac{1}{5} - 3\frac{1}{2} \\
 &= \frac{4 \times 5 + 1}{5} - \frac{3 \times 2 + 1}{2} \\
 &= \frac{21 \times 2}{5 \times 2} - \frac{7 \times 5}{2 \times 5} \\
 &= \frac{42}{10} - \frac{35}{10} \\
 &= \frac{7}{10}
 \end{aligned}$$

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$$\begin{aligned}
 & 6\frac{1}{4} - 3\frac{2}{3} \\
 &= \frac{6 \times 4 + 1}{4} - \frac{3 \times 3 + 2}{3} \\
 &= \frac{25 \times 3}{4 \times 3} - \frac{11 \times 4}{3 \times 4} \\
 &= \frac{75}{12} - \frac{44}{12} \\
 &= \frac{31}{12} = 2\frac{7}{12}
 \end{aligned}$$

$$\begin{aligned}
 & 4\frac{3}{8} + 1\frac{2}{3} \\
 &= \frac{4 \times 8 + 3}{8} + \frac{1 \times 3 + 2}{3} \\
 &= \frac{35 \times 3}{8 \times 3} + \frac{5 \times 8}{3 \times 8} \\
 &= \frac{105}{24} + \frac{40}{24} \\
 &= \frac{145}{24} = 6\frac{1}{24}
 \end{aligned}$$

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Practice Questions

1) $4\frac{2}{3} + 9\frac{2}{10} =$

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

3) $6\frac{1}{3} + 7\frac{1}{2} =$

4) $3\frac{1}{3} + 9\frac{1}{2} =$

5) $3\frac{3}{5} + 9\frac{1}{2} =$

1) $5\frac{5}{10} - 2\frac{1}{5} =$

2) $9\frac{9}{10} - 3\frac{1}{4} =$

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

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

5) $7\frac{4}{5} - 1\frac{5}{10} =$

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