Basic operations with fractions

Solve the following exercises by completing the blank spaces.

1. Add or subtract the following fractions with the **butterfly method**. Simplify your answer and write it as mixed number, if possible.

a. $-\frac{9}{10}+\frac{4}{9}=\frac{(-9\cdot 9)+(\square\cdot 10)}{10\cdot\square}=\frac{\square+\square}{\square}=\frac{\square}{\square}=-\frac{\square}{\square}$

b. $-\frac{3}{7}-\frac{10}{11}=\frac{(\square\cdot 11)-(10\cdot 7)}{\square\cdot 11}=\frac{\square-\square}{77}=\frac{\square}{77}=-\frac{\square}{77}=-\square\frac{\square}{77}$

2. Add or subtract the following fractions with the **LCM method**.

a. $\frac{5}{6}-\frac{7}{18}-\frac{2}{9}$

$M_{18}=\{\square,\dots\}$
$M_9=\{9,\square,\dots\}$ ➡ $\mathrm{LCM}(6,9,18)=\square$
$M_6=\{6,12,\square,\dots\}$

$\frac{5\cdot\square}{6\cdot\square}-\frac{7}{18}-\frac{2\cdot\square}{9\cdot\square}=\frac{\square}{\square}-\frac{7}{18}-\frac{\square}{\square}=\frac{\square-7-\square}{18}=\frac{4\div\square}{18\div\square}=\frac{2}{9}$

b. $-\frac{7}{14}+\frac{4}{21}$

$M_{21}=\{21,\square,\dots\}$
$M_{14}=\{14,28,\square,\dots\}$ ➡ $\mathrm{LCM}(14,21)=\square$

$-\frac{7\cdot\square}{14\cdot\square}+\frac{4\cdot\square}{21\cdot\square}=-\frac{\square}{\square}+\frac{\square}{\square}=\frac{\square+\square}{42}=\frac{\square}{42}=-\frac{\square}{42}$



3. Solve the following exercises. Simplify your answer and write it as mixed number, if possible.

a. $-2\frac{2}{3}\cdot 1\frac{1}{17}=-\frac{\square}{3}\cdot\frac{\square}{17}=-\frac{8}{3\div\square}\cdot\frac{18\div\square}{17}=-\frac{8}{\square}\cdot\frac{\square}{17}=-\frac{\square}{\square}=\square\frac{\square}{\square}$

b. $2\frac{13}{18}\div 2\frac{11}{12}=\frac{\square}{18}\div\frac{\square}{12}=\frac{\square}{18}\cdot\frac{\square}{\square}=\frac{\square\div 7}{18\div\square}\cdot\frac{\square\div\square}{\square\div 7}=\frac{\square}{\square}\cdot\frac{\square}{\square}=\frac{\square}{\square}$

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