

Name: _____

Date: _____

Learning Goal 2.1	I can add and subtract fractions.
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When we add or subtract improper fractions and mixed numbers there are two methods we can use

1. Change all fractions to improper fractions, find a common denominator and solve.
2. Keep mixed fractions, find a common denominator and solve.

Example Add or subtract the following fractions using Method 1.

<p>a. $\frac{3}{5} + 2\frac{1}{3}$ LCM(3,5) = 15</p> $= \frac{3 \times 3}{3 \times 5} + \frac{7 \times 5}{3 \times 5}$ $= \frac{9}{15} + \frac{35}{15}$ $= \frac{44}{15}$ $\left(= 2\frac{14}{15} \right)$	<p>b. $2\frac{1}{6} + 3\frac{2}{3}$ LCM(6,3) = 6</p> $= \frac{13}{6} + \frac{11 \times 2}{3 \times 2}$ $= \frac{13}{6} + \frac{22}{6}$ $= \frac{35}{6}$ $\left(= 5\frac{5}{6} \right)$	<p>c. $4\frac{1}{3} - 2\frac{3}{4}$ LCM(3,4) = 12</p> $= \frac{4 \times 13}{4 \times 3} - \frac{11 \times 3}{4 \times 3}$ $= \frac{52}{12} - \frac{33}{12}$ $= \frac{19}{12}$ $\left(= 1\frac{7}{12} \right)$
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Example Add or subtract the following fractions using Method 2.

<p>a. $4\frac{5}{8} - 2\frac{1}{2}$ LCM(2,8) = 8</p> $= 4\frac{5}{8} - 2\frac{4}{8}$ $= 2\frac{1}{8}$	<p>b. $2\frac{5}{6} + 3\frac{2}{3}$ LCM(3,6) = 6</p> $= 2\frac{5}{6} + 3\frac{4}{6}$ $= 1 + 5\frac{9-6}{6}$ $= 6\frac{3 \div 3}{6 \div 3}$ $= 6\frac{1}{2}$	<p>c. $5\frac{1}{6} - 2\frac{5}{9}$ LCM(6,9) = 18</p> $= 5\frac{3}{18} - 2\frac{10}{18}$ $= 2\frac{3-10}{18}$ $= 2\frac{11}{18}$
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	Pros	and	Cons
Method 1 Switch to Improper <i>* more consistent</i>	- no need to borrow - same process or algorithm for every question	⇒	- time consuming - numbers can get big
Method 2 Switch to Mixed	- not as much writing - numbers are smaller		- borrowing (subtracting) and carrying (adding)

Example Add or subtract the following fractions in the method of your choice.

a. $5 + 3\frac{1}{20}$

$$= 8\frac{1}{20}$$

$$= \frac{100}{20} + \frac{61}{20}$$

$$= \frac{161}{20}$$

b. $5\frac{1}{4} - 10\frac{7}{10}$ $LCM(4,10) = 20$

$$= 5\frac{5}{20} - 10\frac{14}{20}$$

$$= (-5)\left(-\frac{9}{20}\right)$$

$$= -5\frac{9}{20}$$

$$= \frac{21}{4} - \frac{107}{10}$$

$$= \frac{105}{20} - \frac{214}{20}$$

$$= -\frac{109}{20}$$

c. $7\frac{3}{5} - 3\frac{1}{4}$ $LCM(4,5) = 20$

$$= 7\frac{12}{20} - 3\frac{5}{20}$$

$$= 4\frac{7}{20}$$

$$= \frac{38}{5} - \frac{13}{4}$$

$$= \frac{152}{20} - \frac{65}{20}$$

$$= \frac{87}{20}$$

d. $6\frac{4}{5} + 2\frac{5}{6}$ $LCM(5,6) = 30$

$$= 6\frac{24}{30} + 2\frac{25}{30}$$

$$= 8\frac{49}{30}$$

$$= 9\frac{19}{30}$$

$$= \frac{34}{5} + \frac{17}{6}$$

$$= \frac{204}{30} + \frac{85}{30}$$

$$= \frac{289}{30}$$