Chapter 3 - Adding and Subtracting Fractions
3.1 Adding and Subtracting Like Fractions
3.1 Exercise Set, page 180: 1, 5, 11, 19, 30, 44

3.2 Least Common Multiple
3.2 Exercise Set, page 190:1, 3, 17, 35,49

3.3 Adding and Subtracting Unlike fractions
3.3 Exercise Set, page 199: 1, 11, 29, 45, 61, 65
3.4 Adding and Subtracting Mixed Numbers
3.4 Exercise Set, page 210: 1, 3,17, 21, 25, 49

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

We need a common denominator to add these fractions.

$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$

$\frac{3}{7}\left(\frac{1}{1}\right) + \frac{2}{3}\left(\frac{1}{1}\right)$

$\left(\frac{3}{7}\right)\left(\frac{3}{3}\right) + \left(\frac{2}{3}\right)\left(\frac{7}{7}\right)$

$\frac{9}{21} + \frac{14}{21}$

$\frac{9+14}{21}$

$\frac{23}{21}$

3(1)=3
3(2)=6
3(3)=9
3(4)=12
3(5)=15
3(6)=18
3(7)=21

7(1)=7
7(2)=14
7(3)=21

$\frac{4}{9} - \frac{2}{3}$

$$\frac{4}{9} - \left(\frac{2}{3}\right)\left(\frac{3}{3}\right)$$

$$\frac{4}{9} - \frac{6}{9} = \boxed{-\frac{2}{9}}$$

$$\frac{1}{6} + \frac{2}{15}$$

$$\left(\frac{1}{6}\right)\left(\frac{15}{15}\right) + \left(\frac{2}{15}\right)\left(\frac{6}{6}\right)$$

$$\frac{15}{90} + \frac{12}{90}$$

$$\frac{15+12}{90}$$

$$\frac{27}{90} = \frac{(9)(3)}{(9)(10)}$$

$$= \boxed{\frac{3}{10}}$$

Find LCM (6, 15)

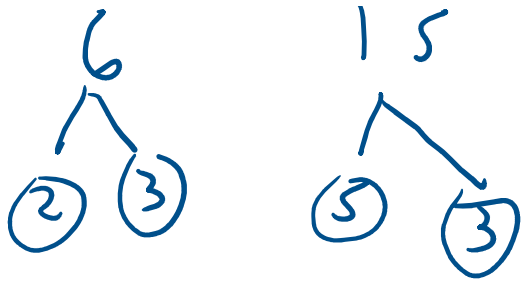
$$\begin{array}{r} 15 \\ \times\ 6 \\ \hline 90 \end{array}$$

Find LCM(6, 15)

$6 \times 1 = 6$	$15 \times 1 = 15$
$6 \times 2 = 12$	$15 \times 2 = 30$
$6 \times 3 = 18$	$15 \times 3 = 45$
$6 \times 4 = 24$	$15 \times 4 = 60$
$6 \times 5 = 30$	$15 \times 5 = 75$
$6 \times 6 = 36$	$15 \times 6 = 90$
$6 \times 7 = 42$	
$6 \times 8 = 48$	
$6 \times 9 = 54$	
$6 \times 10 = 60$	
$6 \times 11 = 66$	
$6 \times 12 = 72$	
$6 \times 13 = 78$	
$6 \times 14 = 84$	
$6 \times 15 = 90$	

Prime factorization

6 15



$LCM(6, 15) = (2)(3)(5)$

$= \boxed{30}$

$\frac{1}{6} + \frac{2}{15}$

$\frac{1}{6}\left(\frac{5}{5}\right) + \left(\frac{2}{15}\right)\left(\frac{2}{2}\right)$

$= \frac{5+4}{30} = \frac{9}{30} = \boxed{\frac{3}{10}}$

3.4

$3\frac{7}{8} + 2\frac{1}{3}$

$\frac{(3)(8)+7}{} + \frac{(3)(2)+1}{}$

$$\frac{(3)(8)+7}{8} + \frac{(2)(3)+1}{3}$$

$$\frac{31}{8} + \frac{7}{3}$$

$$\left(\frac{31}{8}\right)\left(\frac{3}{3}\right) + \left(\frac{7}{3}\right)\left(\frac{8}{8}\right)$$

$$\frac{93 + 56}{24}$$

$$= \frac{149}{24}$$

$$= \boxed{6\frac{5}{24}}$$

$$24\overline{)149}\quad 6,\ 144,\ 5$$

$$3\frac{7}{8} + 2\frac{1}{3}$$

$$= (3+2) + \left(\frac{7}{8} + \frac{1}{3}\right)$$

$= 5 + \left(\frac{7}{8}\right)\left(\frac{3}{3}\right) + \left(\frac{1}{3}\right)\left(\frac{8}{8}\right)$

$= 5 + \frac{21+8}{24}$

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

$= 5 + 1 + \frac{5}{24}$

$= \boxed{6\frac{5}{24}}$

$$24\overline{)29}\quad 1,\ 24,\ 5$$