Adding Mixed Numbers

$\frac{\text{numerator}}{\text{denominator}}$

$\frac{3}{7}$ ← proper fraction
numerator < denominator.

$\frac{5}{2}$ ← improper fraction
numerator > denominator
(can be changed to a mixed number).

$4\frac{1}{6}$ ← mixed number.

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example (1): Change these improper fractions to mixed numbers, in simplest form.

a) $\frac{11}{3}$

$= 3\frac{2}{3}$ ← denominator stays the same.

$3\overline{)11}$ = 3 ← whole #
-9
2R ← numerator

b) $\frac{6}{4}$

$= 1\frac{2 \div 2}{4 \div 2}$

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

c) $\frac{38}{6}$

$= 6\frac{2 \div 2}{6 \div 2}$

$= 6\frac{1}{3}$

$6\overline{)38}$ = 6
-36
2R

d) $\frac{52}{3}$

$= 17\frac{1}{3}$

$3\overline{)52}$ = 17
$-3\downarrow$
22
-21
1R

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Try these:

a) $\frac{15}{4}$ $= 3\frac{3}{4}$

b) $\frac{16}{6}$ $= 2\frac{4 \div 2}{6 \div 2}$ $= 2\frac{2}{3}$

c) $\frac{38}{4}$ $= 9\frac{2 \div 2}{4 \div 2}$ $= 9\frac{1}{2}$

d) $\frac{27}{5}$ $= 5\frac{2}{5}$

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Example (2): Change the mixed numbers to improper fractions.

a) $2\frac{1}{3}$ $= \frac{7}{3}$

b) $5\frac{7}{8}$ $= \frac{47}{8}$

c) $3\frac{5}{8}$ $= \frac{29}{8}$

d) $6\frac{3}{5}$ $= \frac{33}{5}$

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Try these:

a) $3\frac{2}{5}$ b) $6\frac{3}{4}$ c) $2\frac{7}{8}$ d) $8\frac{5}{6}$

$= \frac{17}{5}$ $= \frac{27}{4}$ $= \frac{23}{8}$ $= \frac{53}{6}$

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Textbook (p. 202) # 1, 2, 3

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p.202

#1. a) $1\frac{3}{6}$ b) $4\frac{2}{8}$ c) $1\frac{3}{4}$ d) $3\frac{3}{5}$

a) $= \frac{9 \div 3}{6 \div 3} = \frac{3}{2}$

b) $= \frac{34 \div 2}{8 \div 2} = \frac{17}{4}$

c) $= \frac{7}{4}$

d) $= \frac{18}{5}$

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#2 a) $\frac{17}{5} = 3\frac{2}{5}$

$5\overline{)17}$ = 3, -15, 2R

b) $\frac{9}{4} = 2\frac{1}{4}$

c) $\frac{18}{4} = 4\frac{2 \div 2}{4 \div 2} = 4\frac{1}{2}$

$4\overline{)18}$ = 4, -16, 2R

d) $\frac{28}{6} = 4\frac{4 \div 2}{6 \div 2} = 4\frac{2}{3}$

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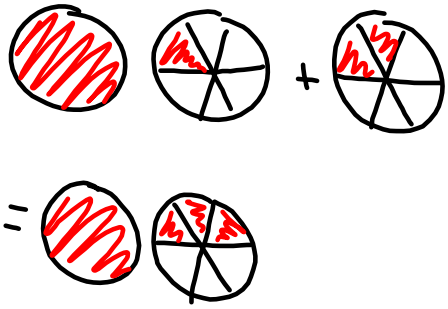
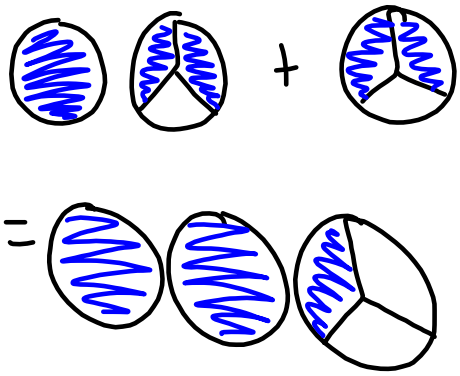
Textbook (p.202)

#3a) $1\frac{1}{6} + \frac{2}{6}$



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

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



$2\frac{1}{3}$

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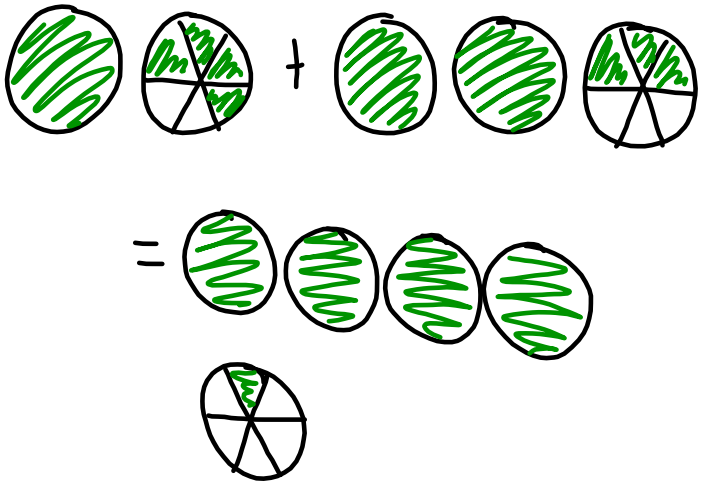
c) $1\frac{4}{6} + 2\frac{1}{2}$ ×3 ×3

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

$= 4\frac{1}{6}$



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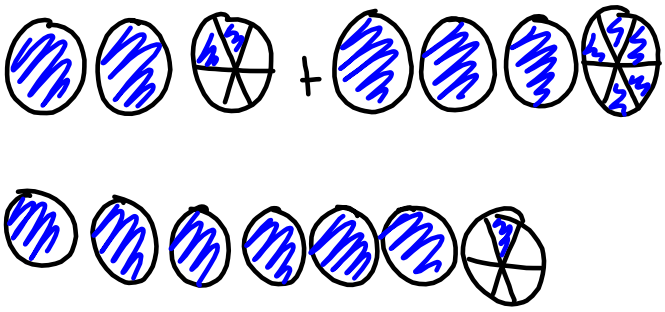
d) $2\frac{1}{3}^{\times 2} + 3\frac{5}{6}$
$\times 2$

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

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

mult. of 3: 3, 6, 9, . . .

mult. of 6: 6, 12, 18, . . .



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example (3): Add Using Mixed Numbers.

a) $5\frac{3}{4}^{\times 3} + 7\frac{2}{3}^{\times 4}$
$\times 3$ $\times 4$

$= 5\frac{9}{12} + 7\frac{8}{12}$

$= 12 + \frac{17}{12}$

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

$= 13\frac{5}{12}$

mult. of 4: 4, 8, 12, 16, . . .

mult. of 3: 3, 6, 9, 12, . . .

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example(4): Use improper fractions.

a) $3\frac{1}{6} + 2\frac{2}{3}$

$= \frac{19}{6} + \frac{8^{\times 2}}{3_{\times 2}}$

$= \frac{19}{6} + \frac{16}{6}$

$= \frac{35}{6}$

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

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Textbook (p.202-203)

#4, 6, 7, 8, 9, 10, 11, 12

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