

## A6 Notes #3 - Adding &amp; Subtracting Fractions

Note Title

30/04/2015

⊗ You must have (or create) a common denominator before you can add or subtract fractions. ⊗

① Create common denominators (aka equivalent fractions)

$$a) \frac{2^{x2}}{3^{x2}} \text{ and } \frac{1}{6} \rightarrow \frac{4}{6} \text{ and } \frac{1}{6}$$

LCM 6

$$b) \frac{7}{10} \text{ and } \frac{2^{x2}}{5^{x2}} \rightarrow \frac{7}{10} \text{ and } \frac{4}{10}$$

LCM 10

$$c) \frac{1^{x3}}{8^{x3}} \text{ and } \frac{1^{x8}}{3^{x8}} \rightarrow \frac{3}{24} \text{ and } \frac{8}{24}$$

LCM 24

$$d) 2\frac{14}{x7} \text{ and } 3\frac{12}{x4} \rightarrow \frac{15^{x4}}{7^{x4}} \text{ and } \frac{13^{x7}}{4^{x7}} \rightarrow \frac{60}{28} \text{ and } \frac{91}{28}$$

Convert!  
LCM 28

2.) Add or subtract the following

⊗ After you get a common denominator, you add or subtract only the numerators and leave the denominators alone! Then reduce? Convert? ⊗

$$a) \frac{3^{x5}}{4^{x5}} + \frac{2^{x4}}{5^{x4}} \rightarrow \frac{15}{20} + \frac{8}{20} = \frac{23}{20} = 1\frac{3}{20}$$

LCM = 20  
add  
Leave alone  
reduce

$$b) \overset{8+}{1\frac{7}{8}} - \frac{3}{4} = \frac{15}{8} - \frac{3 \times 2}{4 \times 2} = \frac{15}{8} - \frac{6}{8} = \frac{9}{8} = \left(1\frac{1}{8}\right)$$

Annotations: *convert* (pointing to  $\frac{7}{8}$ ), *LCM=8* (pointing to denominators), *subtract* (pointing to the subtraction), *leave* (pointing to the denominator 8), *convert* (pointing to the final fraction).

$$c) 2\overset{6+}{\frac{1}{3}} + 1\overset{2+}{\frac{1}{2}} = \frac{7 \times 2}{3 \times 2} + \frac{3 \times 3}{2 \times 3} = \frac{14}{6} + \frac{9}{6} = \frac{23}{6} = \left(3\frac{5}{6}\right)$$

Annotations: *convert* (pointing to  $\frac{1}{3}$  and  $\frac{1}{2}$ ), *LCM=6* (pointing to denominators), *add* (pointing to the addition), *leave* (pointing to the denominator 6), *convert* (pointing to the final mixed number).

3) Solve (use BEDMAS)

$$a) \frac{1}{2} \times \frac{3}{4} - \frac{1}{6} = \frac{1 \times 3}{2 \times 4} - \frac{1}{6} = \frac{3 \times 3}{8 \times 3} - \frac{1 \times 4}{6 \times 4} = \frac{9}{24} - \frac{4}{24} = \left(\frac{5}{24}\right)$$

Annotations: *Do first* (under the multiplication), *LCM=24* (circled, pointing to denominators), *subtract* (pointing to the subtraction), *leave* (pointing to the denominator 24).

yes  
 $6 \times 8 = 48$  works  
 but then its  
 more reducing later

When  $\div$ , flip  
 then multiply!

$$b) \frac{2}{5} + \frac{1}{8} \div \frac{1}{4} = \frac{2}{5} + \frac{1}{8} \times \frac{4}{1} = \frac{2 \times 8}{5 \times 8} + \frac{4 \times 5}{8 \times 5} = \frac{16}{40} + \frac{20}{40} = \frac{36}{40} \overset{\div 2}{=} \frac{18}{20} \overset{\div 2}{=} \left(\frac{9}{10}\right)$$

Annotations: *Do first* (under the division), *LCM* (pointing to denominators),  $5 \times 8 = 40$  (written below), *add* (pointing to the addition), *leave* (pointing to the denominator 40), *reduce* (pointing to the final simplification steps).

Assignment:

Complete p. 234 # 4, 5, 6, 9, 10

★ Must show all steps and check your answers when completed.