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Math 7 Notes
(Section 4-4)
Adding & Subtracting Unlike Fractions

To find the <u>least common denominator</u> (LCD)

   *Choose the biggest number in the denominator
   *Use it if the other number(s) divide evenly into it
   *If it doesn't work, list its multiples until you find one that works

<u>Examples:</u>

$\frac{\square}{12}$ $\frac{\square}{4}$ | $\frac{\square}{6}$ $\frac{\square}{4}$ | $\frac{\square}{9}$ $\frac{\square}{6}$ | $\frac{\square}{3}$ $\frac{\square}{4}$ | $\frac{\square}{9}$ $\frac{\square}{12}$

12, 12, 24 | 6, 12, 18 | 9, 18, 27 | 8, 12 | 24, 36

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Find each sum or difference. Write answer in simplest form.

$\frac{7}{15} - \frac{4}{5}$ | $-\frac{5}{6} - \frac{2}{9}$

$\frac{7}{15} - \frac{4}{5} \cdot \frac{3}{3}$ $\frac{-5 \cdot 3}{6 \cdot 3} + \frac{-2 \cdot 2}{9 \cdot 2}$

$\frac{7 - 12}{15}$ $\frac{7}{15} - \frac{12}{15}$ $\frac{-15 + -4}{18}$

$\frac{7 + -12}{15}$

$\frac{-5}{15} = \left(\frac{-1}{3}\right)$ $\frac{-19}{18} = \left(-1\frac{1}{18}\right)$

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Find each sum or difference. Write answer in simplest form.

$-\frac{6}{9} + \left(-\frac{5}{6}\right)$ | $\frac{3}{8} + \left(-\frac{7}{12}\right)$

$\frac{-6(2)}{9(2)} + \frac{-5(3)}{6(3)}$ $\frac{3(3)}{8(3)} + \frac{-7(2)}{12(2)}$

$\frac{-12}{18} + \frac{-15}{18}$ $\frac{9}{24} + \frac{-14}{24}$

$\frac{-12 + -15}{18}$ $\left(\frac{-5}{24}\right)$

$\frac{-27 \div 9}{18 \div 9} = \frac{-3}{2} = \left(-1\frac{1}{2}\right)$

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Evaluate each expression. $a = -\frac{7}{12}$ $b = \frac{1}{6}$ $c = -\frac{7}{9}$

    a + b | **a - c**

$\frac{-7}{12} + \frac{1(2)}{6(2)}$ $\frac{-7}{12} - \frac{-7}{9}$

$\frac{-7}{12} + \frac{2}{12}$ $\frac{-7(3)}{12(3)} + \frac{7(4)}{9(4)}$

$\frac{-7 + 2}{12}$ $\frac{-21}{36} + \frac{28}{36}$

$\left(\frac{-5}{12}\right)$ $\left(\frac{7}{36}\right)$

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Evaluate each expression. $a = -\frac{7}{12}$ $b = \frac{1}{6}$ $c = -\frac{7}{9}$

b + c

$$\frac{1}{6}\frac{(3)}{(3)} + \frac{-7}{9}\frac{(2)}{(2)}$$

$$\frac{3}{18} + \frac{-14}{18}$$

$$\boxed{\frac{-11}{18}}$$

b - a
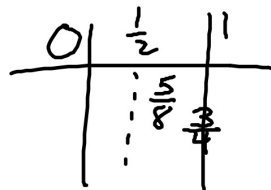
$$\frac{1}{6} - \frac{-7}{12}$$

$$\frac{1}{6}\frac{(2)}{(2)} + \frac{7}{12}$$

$$\frac{2}{12} + \frac{7}{12}$$

$$\frac{9}{12} = \boxed{\frac{3}{4}}$$

Word Problems:

1) Mrs. Armstrong bought $\frac{5}{8}$ pound of roast beef and $\frac{3}{4}$ pound of ham. Which deli meat did she buy more of? How much more?

0 —— $\frac{1}{2}$ —— 1 ; $\frac{5}{8}$ $\frac{3}{4}$

$$\frac{5}{8}$$

$$\frac{3}{4} = \frac{6}{8}$$

$$\frac{3}{4}\frac{(2)}{(2)} - \frac{5}{8}$$

$$\frac{6}{8} - \frac{5}{8}$$

$$\boxed{\frac{1}{8}} \text{ lb.}$$

Word Problems:

2) Tim practice piano $\frac{5}{6}$ hour on Saturday and $\frac{7}{8}$ hour on Sunday. How many hours did he practice on the weekend?

$$\frac{5}{6}\frac{(4)}{(4)} + \frac{7}{8}\frac{(3)}{(3)}$$

$$\frac{20}{24} + \frac{21}{24}$$

$$\frac{41}{24} = \boxed{1\frac{17}{24} \text{ hrs}}$$

Word Problems:

3) Sara budgets her monthly allowance as shown on the chart. What fraction of her allowance is spent on activities with friends?

Part of monthly allowance spent on	
Activities with friends	
Savings	$\frac{1}{10}$
Extra Snacks	$\frac{1}{6}$
Misc.	$\frac{1}{5}$

Add to 1

The whole allowance

$$1 - \left(\frac{1}{10} + \frac{1}{6} + \frac{1}{5}\right)$$

$$1 - \left(\frac{3}{30} + \frac{5}{30} + \frac{6}{30}\right)$$

$$1 - \frac{14}{30}$$

$$\frac{30}{30} - \frac{14}{30} = \frac{16}{30} = \boxed{\frac{8}{15}}$$