Chapter 4 section 7
Order of Operations/ complex fractions

1) $\left(-\frac{3}{4}\right)^2$ 2) $-\frac{1}{2}+\frac{1}{4}\left(-\frac{1}{3}\right)$ 3) $3\left(-\frac{1}{3}\right)^2-2\left(-\frac{1}{3}\right)$

4) Evaluate: ab – cd if a = $-\frac{3}{4}$, b = $\frac{1}{2}$, c = $\frac{1}{3}$, d = $-\frac{1}{4}$

5) If a = - $\frac{1}{2}$ and b = - $\frac{1}{3}$, evaluate: ab ÷ (a + b)

Complex fractions
Definition: when the numerator and/or denominator of a fraction contain fractions.

How does on write a fraction as a division?

way 1: Simplify the numerator and denominator then divide.

$\frac{-\frac{1}{2}+\frac{1}{3}}{\frac{3}{4}-\frac{3}{2}}$ Create equivalent fractions

$\frac{-\frac{3}{6}+\frac{2}{6}}{\frac{3}{4}-\frac{6}{4}}$ simplify

$\frac{-\frac{1}{6}}{-\frac{3}{4}}$ rewrite as a division

$\left(-\frac{1}{6}\right)\div\left(-\frac{3}{4}\right)$ change to multiplication

$\left(-\frac{1}{6}\right)\bullet\left(-\frac{4}{3}\right)$ prime factorization

$\frac{1\bullet 2\bullet 2}{2\bullet 3\bullet 3}$ reduce and simplify

$\frac{2}{9}$

Way 2: Multiply the numerator and denominator by the LCD of all the fractions

$$\frac{-\frac{1}{2}+\frac{1}{3}}{\frac{3}{4}-\frac{3}{2}}$$

The denominators on top are: 2, 3. the denominators on the bottom are 2,4

The LCD is $2 \bullet 2 \bullet 3$ or 12. So multiply each fraction by 12

$$\frac{-\frac{1}{2}\bullet 12+\frac{1}{3}\bullet 12}{\frac{3}{4}\bullet 12-\frac{3}{2}\bullet 12}$$

reduce: Note: $12=\frac{12}{1}$

$$\frac{-6+4}{9-18}$$

simplify

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

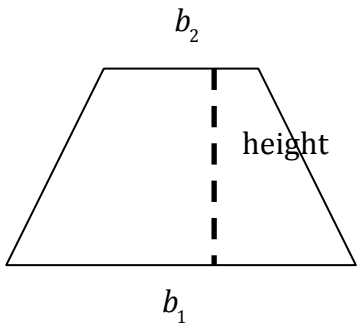
simplify

$$\frac{2}{9}$$

a) $\frac{-\frac{2}{3}+\frac{1}{5}}{\frac{4}{5}-\frac{1}{2}}$

b) $\frac{\frac{5}{6}+\frac{2}{3}}{\frac{3}{5}-\frac{2}{3}}$

Trapezoid



Area = $\frac{1}{2}h\left(b_1+b_2\right)$

$b_1 = 4\frac{1}{4}$ inches, $b_2 = 2\frac{1}{2}$ inches height = 3 inches