Do Now

Convert the following decimals into fractions. Write your fractions in lowest terms.

1) -0.25 $\quad -\frac{1}{4}$

2) 1.03 $\quad \frac{3}{100}$

3) -6.125 $\quad -6\frac{1}{8}$

Convert the following fractions into decimals using long division.

4) $-\frac{4}{9}$ $\quad -.4$ $\quad .44$, $9\overline{)4.00}$, -36, 40, 36, 4

5) $8\frac{3}{4}$ $\quad .75$, $4\overline{)3.00}$, 28, 20, 20, 0 $\quad 8.75$

6) $-2\frac{7}{8}$ $\quad -2.875$, $8\overline{)7.000}$, -64, 60, 56, 40

Lesson #13 – Adding and Subtracting Fractions with Like Denominators

We use the same rules for adding and subtracting integers as we use for adding and subtracting fractions.

Example 1) Evaluate the following:

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

Example 2) Evaluate the following:

A) $-6 + (-3)$	B) $-\frac{6}{15} + \left(-\frac{3}{15}\right)$
-9	$-\frac{9 \div 3}{15 \div 3}$, $-\frac{3}{5}$

Now, You Try! Add the following fractions. Write your answer in simplest form.

3) $\frac{5}{9}+\frac{7}{9}$ $\frac{12}{9}$ $9\overline{)12}$ -9 3 $\frac{3}{9}\downarrow$ $1\frac{1}{3}$	4) $-\frac{5}{6}+\frac{1}{6}$ $\frac{-4}{6}\div 2$ $-\frac{2}{3}$	5) $-\frac{1}{6}+\left(-\frac{5}{6}\right)$ $\frac{-6}{6}=-1$

Subtracting fractions also works the same way as subtracting integers.

**REMEMBER THE RULE FOR SUBTRACTION: Keep, change, change **

Example 6) Evaluate the following:

A) $-8-7$ $-8+(-7)=-15$	B) $-\frac{8}{9}-\frac{7}{9}$ $-\frac{8}{9}+\left(\frac{-7}{9}\right)$ $\frac{-15}{9}$ $9\overline{)15}$ -9 6 $\frac{6\div 3}{9\div 3}\downarrow$ $1\frac{2}{3}$

Now, You Try! Subtract the following fractions. Write your answer in simplest form.

7) $\frac{3}{4}-\left(-\frac{1}{4}\right)$ $\frac{3}{4}+\frac{1}{4}=\frac{4}{4}=1$	8) $-\frac{7}{13}-\frac{3}{13}$ $-\frac{7}{13}+\left(\frac{-3}{13}\right)=\frac{-10}{13}$	9) $-\frac{4}{7}-\left(-\frac{2}{7}\right)$ $\frac{-4}{7}+\frac{2}{7}=\frac{-2}{7}$

Example 10) Add the following: $5\frac{7}{9}+8\frac{4}{9}$ $\frac{52}{9}+\frac{76}{9}=\frac{128}{9}$ $9\overline{)128}$ $-9\downarrow$ 38 -36 2 $14\frac{2}{9}$

Example 11) Jasmine is $60\frac{1}{4}$ inches tall. Amber is $58\frac{3}{4}$ inches tall. How much taller is Jasmine than amber? $\frac{241}{4}-\frac{235}{4}=\frac{6}{4}$ $4\overline{)6}$ -4 2 $\frac{2}{4}=\frac{1}{2}$

Now, You Try! Add or subtract. Write your answer in simplest form.

1. $\frac{2}{5} + \frac{2}{5}$ $\frac{4}{5}$

2. $\frac{1}{10} + \frac{5}{10}$ $\frac{6}{10} \div 2 = \frac{3}{5}$

3. $-\frac{3}{4} + \frac{1}{4}$ $\frac{-2}{4} \div 2 = -\frac{1}{2}$

4. $\frac{1}{6} + (-\frac{5}{6})$ $\frac{-4}{6} \div 2 = -\frac{2}{3}$

5. $-\frac{3}{8} + \frac{7}{8}$ $\frac{4}{8} \div 4 = \frac{1}{2}$

6. $\frac{5}{11} - (-\frac{4}{11})$ $\frac{5}{11} + \frac{4}{11} = \frac{9}{11}$

7. $-\frac{4}{5} - \frac{3}{5}$ $-\frac{4}{5} + (-\frac{3}{5}) = -\frac{7}{5}$

8. $-\frac{9}{13} + (-\frac{6}{13})$ $-\frac{15}{13}$ $13\overline{)15}$ R 2 $= -1\frac{2}{13}$

9. $2\frac{1}{4} + 1\frac{1}{4}$ $\frac{9}{4} + \frac{5}{4} = \frac{14}{4}$ $4\overline{)14}$ R 2 $= 3\frac{2}{4} = 3\frac{1}{2}$

10. $3\frac{5}{7} + 2\frac{3}{7}$ $\frac{26}{7} + \frac{17}{7}$ $7\overline{)43}$ R 1 $\frac{43}{7} = 6\frac{1}{7}$

11. $3\frac{5}{8} + 1\frac{3}{8}$ $\frac{29}{8} + \frac{11}{8}$ $8\overline{)40}$ $\frac{40}{8} = 5$

12. $8 - 6\frac{1}{6}$ $7\frac{6}{6} - 6\frac{1}{6}$ $6\overline{)11}$ R 5 $\frac{48}{6} - \frac{37}{6}$ $\frac{11}{6} = 1\frac{5}{6}$

13. $-1\frac{3}{7} - (-2\frac{2}{7})$

14. $4\frac{3}{5} - 2\frac{4}{5}$

15. $\frac{4}{15} - \frac{7}{15}$ $\frac{4}{15} + (\frac{-7}{15})$ $\frac{-3}{15} \div 3 = -\frac{1}{5}$

16. Joe is diving $2\frac{1}{2}$ feet below sea level. He then decides to descend $7\frac{1}{2}$ more feet. How many feet below sea level is he?

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

$\frac{-5}{2} + (\frac{-15}{2}) = \frac{-10}{2} = -5$ ft