

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Learning Goal 3.2**

I can add and subtract rational numbers.

**Rational Numbers ( )** 

Any number that can be written as a fraction

$$\sqrt{15} = 3.8\ldots \quad \text{irrational}$$

$$\sqrt{16} = 4 \quad \text{rational}$$

**Recall Adding integers:**

a.  $8 + 7$

$= 15$

b.  $(-8) + 7$

$= -1$

c.  $8 + (-7)$

$= 1$

d.  $(-13) + (-9)$

$= -13 - 9$

$= -22$

e.  $(-14) + 5$

$= -9$

f.  $2 + (-12)$

$= \frac{2 - 12}{-10}$

**Recall Adding decimals:**

\* only if you decide to have a calculator test \*

a.  $8.5 + 7.2 = 15.7$

$$\begin{array}{r}
 8.5 \\
 + 7.2 \\
 \hline
 15.7
 \end{array}$$

b.  $(-8.5) + 7.2 = -1.3$

c.  $8.5 + (-7.2) = 1.3$

$$\begin{array}{r}
 8.5 \\
 - 7.2 \\
 \hline
 1.3
 \end{array}$$

d.  $(-10.3) + (-0.9)$

$= -11.2$

e.  $(-21.4) + 5.6$

$= -15.8$

f.  $2.2 + (-11.2)$

$= -9.0$

**Finally Adding Fractions:**

1. Proper and Improper, with the **same denominator**.

a.  $\frac{2}{7} + \frac{3}{7}$

$$= \frac{2+3}{7} = \frac{5}{7}$$

b.  $(-\frac{2}{7}) + \frac{3}{7}$

$$= -\frac{2+3}{7} = -\frac{5}{7}$$

c.  $\frac{2}{7} + (-\frac{2}{7})$

$$= 0$$

d.  $(-\frac{5}{6}) + (-\frac{11}{6})$

$$= -\frac{5+11}{6} = -\frac{16}{6} \stackrel{\div 2}{=} -\frac{8}{3}$$

e.  $(-\frac{5}{2}) + \frac{3}{2}$

$$= -\frac{5+3}{2} = -\frac{8}{2} = -4$$

f.  $\frac{4}{3} + (-\frac{1}{3})$

$$= \frac{4-1}{3} = \frac{3}{3} = 1$$

2. Proper and Improper, with **different denominators**.

a.  $(\frac{2}{2})\frac{2}{5} + \frac{3}{2}(\frac{5}{5})$

$$= \frac{4}{10} + \frac{15}{10}$$

$$= \frac{19}{10}$$

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

$$= -\frac{4}{10} + \frac{15}{10}$$

$$= \frac{11}{10}$$

c.  $(\frac{2}{2})\frac{2}{5} + (-\frac{2}{2})(\frac{5}{5})$

$$= \frac{4}{10} - \frac{10}{10}$$

$$= -\frac{6}{10} \stackrel{\div 2}{=} -\frac{3}{5}$$

d.  $(-\frac{1}{6}) + (-\frac{11}{12})$

① LCM = 12

② CM = 24

$$-\frac{2}{12} - \frac{11}{12}$$

$$-\frac{4}{24} - \frac{22}{24}$$

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

$$= -1\frac{1}{12}$$

Assignment

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

$$= -\frac{26}{24} \stackrel{\div 2}{=} -\frac{13}{12}$$

f.  $\frac{4}{3} + (-\frac{3}{8})$