Adding & Subtracting Rational Numbers

We are using the same rules of addition and subtraction, but now we are using numbers that are fractions and decimals.

Example 1

-1.354 + (-0.765)

$$
\begin{array}{r}
-2.119 \\
1\ 1 \\
1.354 \\
+\,0.765 \\
\hline
2.119
\end{array}
$$

Example 2

-2.304 + (-0.268)

$$
\begin{array}{r}
-2.572 \\
1 \\
2.304 \\
+\,0.268 \\
\hline
2.572
\end{array}
$$

Example 3

$$-\frac{4}{3}+\frac{5}{8}+\left(-\frac{7}{3}\right)$$

$$\frac{-32}{24}+\frac{15}{24}+\frac{-56}{24}$$

$$\boxed{\frac{-73}{24}}$$

Example 4

$$\frac{5}{8}+\left(-\frac{3}{4}\right)+\frac{15}{16}$$

$$\frac{10}{16}+\frac{-12}{16}+\frac{15}{16}$$

$$\boxed{\frac{13}{16}}$$

Example 5

$$28.32 + (-56.17) + 32.41 + (-75.13)$$

$$60.73 + -131.30$$

$$\boxed{-70.57}$$

$$\begin{array}{r} {\scriptstyle 1} \\ 28.32 \\ +\ 32.41 \\ \hline 60.73 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 56.17 \\ +\ 75.13 \\ \hline 131.30 \end{array}$$

$$\begin{array}{r} {\scriptstyle 0\ 12} \\ 131.30 \\ -\ 60.73 \\ \hline 70.57 \end{array}$$

Example 6

$$32.01 + (-13.02) + (-14.72) + 6.98$$

$38.99 + -27.74$

11.25

$$\begin{array}{r} 32.01 \\ +\ 6.98 \\ \hline 38.99 \end{array} \qquad \begin{array}{r} 13.02 \\ +\ 14.72 \\ \hline 27.74 \end{array} \qquad \begin{array}{r} 38.99 \\ -\ 27.74 \\ \hline 11.25 \end{array}$$

Example 7

$$-\frac{7}{8}\left(+-\frac{3}{16}\right)$$

$$-\frac{14}{16} + \frac{3}{16}$$

$$\frac{-11}{16}$$

Example 8

$$-\frac{5}{9}\left(+-\frac{3}{5}\right)$$

$$\frac{-25}{45} + \frac{27}{45}$$

$$\frac{2}{45}$$

Example 9

$$-1\frac{2}{3} - \left(5\frac{1}{5}\right)$$

$$-\frac{5}{3}\cdot\frac{5}{5} + \frac{26}{5}\cdot\frac{3}{3}$$

$$\frac{-25}{15} + \frac{78}{15}$$

$$\boxed{\frac{53}{15}}$$

Example 10

$$4\frac{7}{8} + \left(-7\frac{1}{3}\right)$$

$$\frac{39}{8}\cdot\frac{3}{3} + -\frac{22}{3}\cdot\frac{8}{8}$$

$$\frac{117}{24} + \frac{-176}{24}$$

$$\boxed{\frac{-59}{24}}$$

Example 11

Evaluate y - 0.5
if y = -0.8.

$$-0.8 + -0.5$$

$$\boxed{-1.3}$$

$$\begin{array}{r} 0.8 \\ 0.5 \\ \hline 1.3 \end{array}$$

Example 12

Evaluate 6.32 - y
if y = -3.42.

$$6.32 - -3.42$$

$$\boxed{9.74}$$

$$\begin{array}{r} 6.32 \\ 3.42 \\ \hline 9.74 \end{array}$$

YOU TRY...

1. $-8.007 + (-5.755)$

2. $-\frac{3}{5} + \left(-\frac{2}{3}\right) + \frac{3}{8}$

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

$-\frac{19 \cdot 7}{2 \cdot 7} - \frac{27 \cdot 2}{7 \cdot 2}$

$-\frac{133}{14} + \frac{-54}{14}$

$\boxed{\frac{-187}{14}}$