

Lesson 2.2:

Adding Rational Numbers (Fractions)

 **Key Idea****Adding Rational Numbers**

Words To add rational numbers, use the same rules for signs as you used for integers.

Numbers $-\frac{1}{3} + \frac{1}{6} = \frac{-2}{6} + \frac{1}{6} = \frac{-2+1}{6} = \frac{-1}{6} = -\frac{1}{6}$

*Start by getting a common denominator, then use rules to add/subtract the numerators.

Example 1:Find $-\frac{8}{3} + \frac{5}{6}$.

$$-\frac{8 \times 2}{3 \times 2} + \frac{5}{6} = -\frac{16}{6} + \frac{5}{6} = \frac{-16 + 5}{6}$$

$$= \frac{-11}{6} = -1\frac{5}{6}$$

Add.

1. $-\frac{7}{8} + \frac{1}{4}$

$$-\frac{7}{8} + \frac{2}{8}$$

$$\frac{-7+2}{8}$$

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

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

$$\frac{4}{2} + \left(-\frac{7}{2}\right)$$

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

$$-\frac{3}{2} = -1\frac{1}{2}$$

Example 2:

Evaluate $2x + y$ when $x = \frac{1}{4}$ and $y = -\frac{3}{2}$.

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

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

Evaluate the expression when $a = \frac{1}{2}$ and $b = -\frac{5}{2}$.

3. $|a + b|$

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

Do the addition first, and then apply the $| |$.

$$\left|\frac{1+(-5)}{2}\right| = \left|\frac{-4}{2}\right| = |-2| = 2$$