

## Working with Algebraic Fractions

Materials Needed: Communicators, pens, and erasers

Do Now: Ask students to find the answers to the following four questions:

1.  $\frac{4}{9} + \frac{8}{9} =$       2.  $\frac{2}{15} + \frac{7}{20} =$       3.  $\frac{14}{15} - \frac{5}{12} =$       4.  $\frac{3}{10} \times \frac{12}{15} =$

Lesson: Distribute copies of the Working with Fractions Template.

1. Review the four do now questions to see that students understand that common denominators are necessary for addition and subtraction of fraction, but not with multiplication. To find the common denominators first factor each denominator and be sure students can use these factors to find the common denominator. Ask students to follow you on their communicators.

Example:  $\frac{2}{15} + \frac{7}{20} =$       so  $\frac{2}{15} \times \frac{4}{4} + \frac{7}{20} \times \frac{3}{3} =$   
 $(3 \times 5) = 15$        $\frac{8}{60} + \frac{21}{60} = \frac{29}{60}$   
 $(4 \times 5) = 20$   
 $3 \times 4 \times 5 = 60$

2. First factor each denominator to find the common denominator. Then use the multiplication by 1 to change each fraction to the common denominator. Then discuss how the pieces are now the same size and the numerator tells you how many pieces you have. Find the answer to each problem.
3. Work on the following problems by assigning the students to complete each problem on their communicator and then showing it before you move to the next problem.

A.  $\frac{7}{2x} + \frac{4}{2x} =$

B.  $\frac{3}{2x+1} + \frac{4}{2x+1} =$

C.  $\frac{4}{5x} + \frac{2}{3x} =$

D.  $\frac{3x}{x^2} - \frac{2}{x^2} =$

E.  $\frac{11}{2x} - \frac{2}{3x} =$

F.  $\frac{x}{x+4} + \frac{4}{4+x} =$

$$\text{G. } \frac{3}{2(x+1)} + \frac{2}{3(x+1)} =$$

$$\text{H. } \frac{2}{x-1} + \frac{1}{x+1} =$$

$$\text{I. } \frac{2}{x+2} - \frac{3}{2x+4} =$$

$$\text{J. } \frac{4}{x^2 - 4x} - \frac{3}{x-4} =$$

$$\text{K. } \frac{3x^2}{x^2 - 4} - \frac{12}{x^2 - 4} =$$

$$\text{L. } \frac{4}{x+1} + \frac{5}{x+2} =$$

$$\text{M. } \frac{7}{4x} + \frac{3}{4x} =$$

$$\text{N. } \frac{5}{6x} + \frac{7}{3x} =$$

$$\text{O. } \frac{2}{3x^3} - \frac{1}{2x^3} =$$

$$\text{P. } \frac{4}{3(x-1)} + \frac{5}{2(x-1)} =$$

$$\text{Q. } \frac{2}{abc} - \frac{3}{cde} =$$

$$\text{R. } \frac{7}{3x+6} - \frac{3}{x+2} =$$