Equivalent Fractions
Check Your Understanding

One indicator of how well a student understands equivalent fractions is to compare a student's work and explanation for a problem with how other students have responded to the same problem. Students, parents, or teachers can use the following problem and sample responses to evaluate understanding.

Directions for the Student:

1) Solve the following problem and explain your work and answer.
2) Compare your work to the sample responses in order to determine if your work indicates deep, partial, or beginning understanding.

Problem:

Charles and his family cut a pizza into four parts and ate three of them. James and his family cut a pizza into eight parts and ate six of them. Which family ate a greater fraction of the pizza?

Level of Understanding	Sample Student Response	Comments
Deep Understanding	**Student 1:** "I think of a pie. You can cut it into 4 pieces and take 3. Or you can cut each of those 4 pieces in half and have 6 out of 8. So $\frac{3}{4}$ is the same as $\frac{6}{8}$." 	This student was able to think of models cut into equal-sized parts. Three parts out of four is the same as six parts out of eight.
	Student 2: "You can change fourths to eighths. Since you have to multiply 4 x 2 to get 8, you have to multiply 3 x 2 also." $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$	This student realizes that you can change a fraction to an equivalent fraction by multiplying both numerator and denominator by the same number.

Level of Understanding	Sample Student Response	Comments
Partial Understanding	**Student 3:** "We need to change the fractions to a common denominator. That's 32." $\frac{3}{4} = \frac{18}{32}$ $\frac{6}{8} = \frac{24}{32}$ "So $\frac{6}{8}$ is bigger."	This student did not recognize that the least common denominator is eighths and made an error in converting $\frac{3}{4}$ to thirty-seconds.
	Student 4: "You can make a list of equivalent fractions. Since $\frac{28}{32}$ is more than $\frac{24}{32}$, $\frac{6}{8}$ is bigger." $\frac{3}{4}, \frac{6}{8}, \frac{12}{16}, \frac{24}{32}$ $\frac{6}{8}, \frac{14}{16}, \frac{28}{32}$	This student has a method that will work, but does not recognize that $\frac{6}{8}$ is in both lists, then makes an error before comparing thirty-seconds.

Level of Understanding	Sample Student Response	Comments
Beginning Understanding	**Student 5:** "James and his family have two pieces left. Charles and his family only have one piece left, so they ate more."	Instead of thinking about equal-sized parts, this student is focusing on the number of pieces left.
	Student 6: "Six eighths is more because six and eight are bigger numbers."	This student believes that the larger the numerator and denominator, the larger the fraction.