UNIT FRACTIONS

Name: "If I Know This"   **Type:** Routine

About the Routine: Reasoning with rational numbers requires moving among decimals and fractions. *If I Know This* (SanGiovanni & Milou, 2018) is a routine for developing skill with converting fractions to decimals. It focuses students' attention on conversions with unit fractions and uses them for other conversions. For example, if one knows that $\frac{1}{8}$ converts to 0.125 they can think of $\frac{3}{8}$ as 3 × 0.125 or 0.375.

Materials: Record two or three unit fraction conversions (see example) along with two or three prompts wherein students can use the given conversions.

Directions: 1. Post basic conversions (or have students generate them).

2. Pose conversion prompts that connect to the *If I Know This* given conversions.

3. Give think time for students to think about possible conversions.

4. Ask students to share their conversion strategies with a partner.

5. Bring the group together to share their conversion strategies.

Example A

If I Know . . .		
$\frac{1}{5} = 0.2$	$\frac{1}{10} = 0.1$	$\frac{1}{20} = 0.05$
What is $\frac{3}{5}$ as a decimal?		
What is $\frac{29}{10}$ as a decimal?		
What is $\frac{8}{40}$ as a decimal?		

For the first prompt, students may think of $\frac{3}{5}$ as 3 × 0.2 or 0.6, whereas some students may just double the fraction to get $\frac{6}{10}$ and know that is 0.6 (or they may "just know" this conversion).

Example B

If I Know . . .		
$\frac{1}{2} = 0.5$	$\frac{1}{4} = 0.25$	$\frac{1}{8} = 0.125$
What is $\frac{3}{8}$ as a decimal?		
What is $\frac{5}{2}$ as a decimal?		
What is $\frac{6}{4}$ as a decimal?		

In the first prompt, students might reason that $\frac{3}{8}$ is the same as 3×0.125. Some might think of it as $0.25 + 0.125$ because they recognize $\frac{3}{8}$ as $\frac{1}{4} + \frac{1}{8}$ or $0.25 + 0.125$. For the second problem, students might use the known conversion for $\frac{1}{2}$ and then multiply 5×0.5 finding $\frac{5}{2}$ to be 2.5. Although another student might multiply it by 5 finding $\frac{25}{10}$, which they can easily convert to 2.5. And in the last example, students might convert $\frac{6}{4}$ as 6×0.25. Others might think of it as 1 and a half sharing that they didn't need the conversions to help them.