

Name:

Rules for Ordering Fractions

In this exploration, you will be asked to use your knowledge of fractions and your reasoning to order fractions. We will ask you to do this without finding the least common denominator or using a calculator to convert to decimals because the goal here is not simply to get the right answer but also to apply basic fraction ideas.

Complete Individually:

1. Using Table 1, insert one of the symbols $>$, $=$, or $<$ into the space between the fractions, using fraction ideas without finding the least common denominator or converting to decimals. Briefly justify your choice.

Complete As a Group:

2. Compare your responses with your group members. In some cases, you may have the same answer but different justifications. Come to an agreement about the greatest fraction in each pair.
3. With your group, develop a set of general rules that could be used by another person to compare two fractions. There are many possible rules and many ways to state them.

Sample Rule: *If two fractions have the same denominator, the fraction with the larger numerator is greater.*

4. Exchange rules with another group. Then use *the other group's rules* to order the fractions in Table 2.
5. Constructively critique the other group's rules. Are the group's rules with respect first to *valid*? Could you help them to be *clearer*? If you think any of the rules are invalid, explain why. If you feel that any rules are not clear, circle the words or phrases that are ambiguous or unclear and suggest better phrasing. Provide your constructive feedback to the group.
6. On the basis of the critique from the other group, make any necessary changes in your rules.
7. If time remains, use your rules to order each set of fractions.
 - a. $31/80$, $13/17$, $2/3$
 - b. $1/3$, $4/7$, $2/5$, $7/8$, $5/16$
 - c. $3/10$, $2/3$, $7/12$, $4/5$, $3/7$
 - d. $1/8$, $2/5$, $5/8$, $5/6$, $3/49$, $3/56$

Table 1 for Ordering Fractions

	Fraction	Your Answer: >, =, or <	Fraction	Justification
a.	$\frac{3}{5}$		$\frac{3}{8}$	
b.	$\frac{5}{6}$		$\frac{7}{8}$	
c.	$\frac{3}{5}$		$\frac{5}{12}$	
d.	$\frac{1}{2}$		$\frac{17}{31}$	
e.	$\frac{3}{8}$		$\frac{2}{9}$	
f.	$\frac{2}{7}$		$\frac{3}{8}$	
g.	$\frac{1}{4}$		$\frac{2}{9}$	
h.	$\frac{9}{11}$		$\frac{7}{9}$	
i.	$\frac{3}{8}$		$\frac{4}{10}$	
j.	$\frac{3}{10}$		$\frac{9}{23}$	

Table 2: Ordering Fractions

	Fraction	Answer based on other group's rules: >, =, or <	Fraction	Justification
a.	$\frac{3}{4}$		$\frac{7}{12}$	
b.	$\frac{5}{8}$		$\frac{10}{13}$	
c.	$\frac{5}{12}$		$\frac{7}{13}$	
d.	$\frac{7}{10}$		$\frac{14}{19}$	
e.	$\frac{2}{7}$		$\frac{1}{3}$	
f.	$\frac{3}{8}$		$\frac{4}{7}$	