

3.NF Ordering Fractions

Alignments to Content Standards: 3.NF.A.3

Task

Arrange the fractions in order from least to greatest. Explain your answer with a picture.

a. $\frac{1}{5}, \frac{1}{7}, \frac{1}{3}$

b. $\frac{2}{5}, \frac{2}{7}, \frac{2}{3}$

c. $\frac{5}{6}, \frac{3}{6}, \frac{1}{6}$

d. $\frac{5}{12}, \frac{8}{12}, \frac{4}{12}$

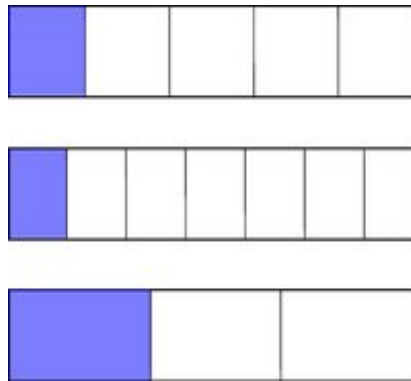
IM Commentary

The purpose of this task is to extend students' understanding of fraction comparison and is intended for an instructional setting. While the conceptual components of this task fit squarely in the 3rd grade (ordering fractions with either like numerators or like denominators), the fractions that are given in the task involve denominators beyond those expected at a mastery level in 3rd grade ("Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8"). This makes the task inappropriate for high-stakes assessment, but it could be used for e.g. 3rd students who are ready for more challenging problems or as a bridge for 4th grade students.

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Solution

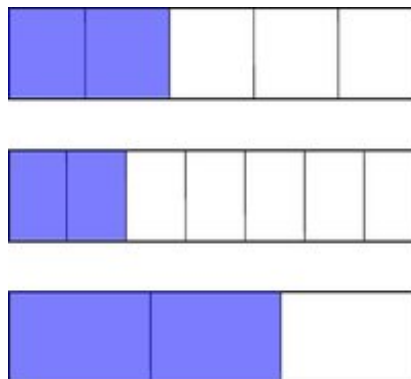
a. The more pieces the whole is divided into, the smaller the pieces will be. So a unit fraction with a larger denominator will represent a smaller number. We can see this if we shade in one piece of each bar as shown below:



The diagram shows that we can order the fractions from least to greatest as follows:

$$\frac{1}{7}, \frac{1}{5}, \frac{1}{3}$$

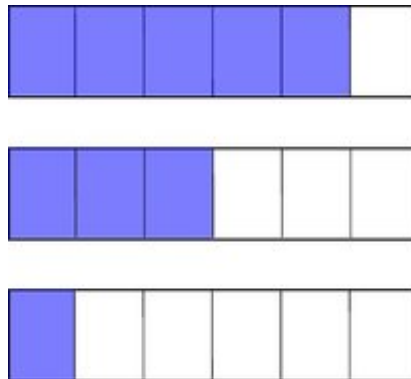
b. When the numerators are the same, that means we have the same number of pieces. A larger denominator means a smaller piece (see above). If we have the same number of pieces but the pieces are smaller, we will have a smaller total amount. We can shade in each bar as shown below to illustrate:



The diagram shows that we can order the fractions from least to greatest as follows:

$$\frac{2}{7}, \frac{2}{5}, \frac{2}{3}$$

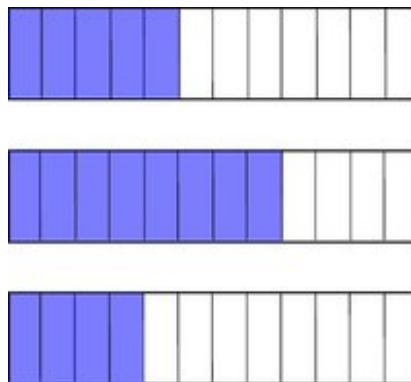
c. When the denominators are the same, the sizes of the pieces are the same. If we have a larger numerator, we have more pieces. We can illustrate this by shading in each bar as shown below:



The diagram shows that we can order the fractions from least to greatest as follows:

$$\frac{1}{6}, \frac{3}{6}, \frac{5}{6}$$

d. The reasoning here is the same as in part (c). Shade in each bar as shown below:



The diagram shows that we can order the fractions from least to greatest as follows:

$$\frac{4}{12}, \frac{5}{12}, \frac{8}{12}$$



fractions

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