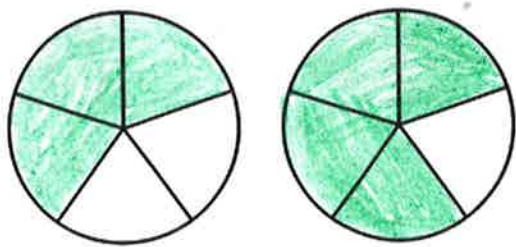


## Comparing Fractions

Ex: Use the pies to determine which is greater,  $\frac{3}{5}$  or  $\frac{4}{5}$ ?

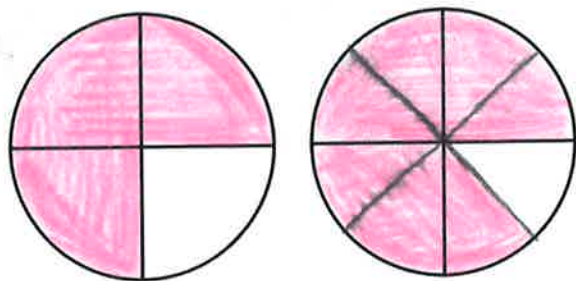


**Rule:** If the denominators of two fractions are the same, the fraction with the greater numerator is greater.

Ex: Which is greater,  $\frac{3}{4}$  or  $\frac{7}{8}$ ?

8 is a multiple of 4,  $4 \times 2 = 8$

$$\frac{3}{4} = \frac{3 \cdot 2}{4 \cdot 2} = \frac{6}{8}$$



Ex: Which is greater,  $\frac{5}{6}$  or  $\frac{7}{9}$ ?

$$\frac{1}{6} = 3 \times \frac{1}{18}$$

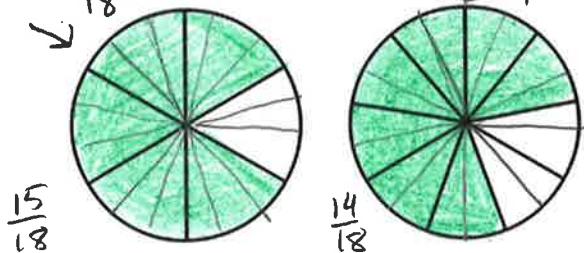
$$\frac{1}{9} = 2 \times \frac{1}{18}$$

$$\text{LCM} = 2 \cdot 3 \cdot 3 = 18$$

$$\frac{6}{3} \quad \frac{9}{3}$$

$$\frac{5}{6} = \frac{5 \cdot 3}{6 \cdot 3} = \frac{15}{18}$$

$$\frac{7}{9} = \frac{7 \cdot 2}{9 \cdot 2} = \frac{14}{18}$$



$$\frac{5}{6} > \frac{7}{9}$$

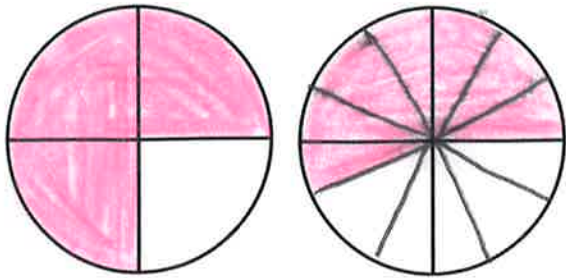
**Rule:** If the denominators of two fractions are different,

- ① Find the LCM of the two denominators
- ② Change each fraction to an equivalent fraction with the LCM in the denominator
- ③ Compare the numerators to determine which fraction is bigger.

Practice

For each pair, determine which fraction is greater, first with pictures, then using numbers.

1.  $\frac{3}{4}$  or  $\frac{7}{12}$

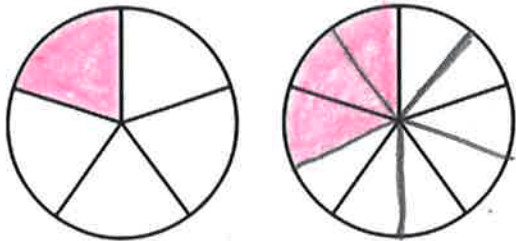


12 is  $4 \times 3$

$$\frac{3}{4} \cdot \frac{3}{3} = \frac{9}{12}$$

$$\frac{3}{4} > \frac{7}{12}$$

2.  $\frac{1}{5}$  or  $\frac{3}{10}$ ?

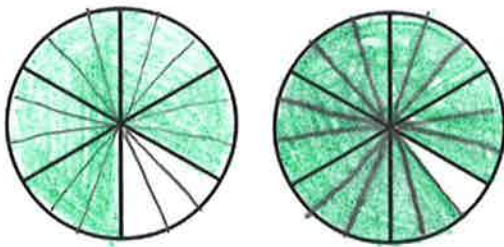


10 is  $5 \times 2$

$$\frac{1}{5} \cdot \frac{2}{2} = \frac{2}{10}$$

$$\frac{1}{5} < \frac{3}{10}$$

3.  $\frac{5}{6}$  or  $\frac{17}{18}$ ?

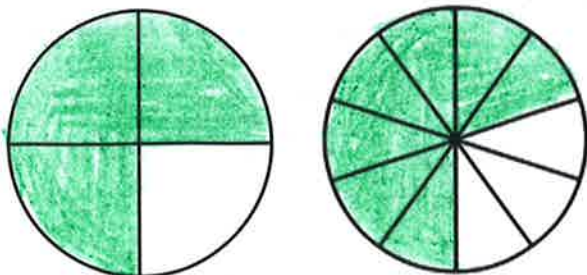


18 is  $6 \times 3$

$$\frac{5}{6} \cdot \frac{3}{3} = \frac{15}{18}$$

$$\frac{5}{6} < \frac{17}{18}$$

4.  $\frac{3}{4}$  or  $\frac{7}{10}$ ?



$$\begin{array}{l} 4 \\ \swarrow \downarrow \\ 2 \quad 2 \end{array} \quad \begin{array}{l} 10 \\ \swarrow \downarrow \\ 5 \quad 2 \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \cdot 2 \cdot 5 \\ &= 20 \end{aligned}$$

$$\frac{3}{4} \cdot \frac{5}{5} = \frac{15}{20}$$

$$\frac{7}{10} \cdot \frac{2}{2} = \frac{14}{20}$$

$$\frac{3}{4} > \frac{7}{10}$$

↑ Dividing into 20ths is not very practical! So we use math! →