8 Inequalities

"If you reached into your water bowl and found more than $20..."

"And then reached into your cat food bowl and found more than $40..."

"Someone else's bowls!"

"What would you have?"
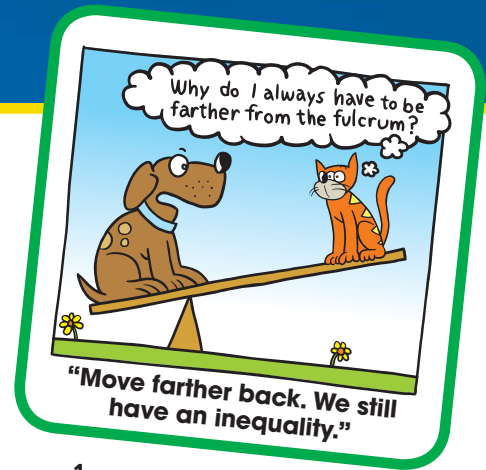

"Dear Precious Pet World: Your ad says 'Up to 75% off on selected items'."

"I select Yummy Tummy Bacon-Flavored Dog Biscuits."

"Hey, it didn't say who's doing the selecting."

What You Learned Before

"Move farther back. We still have an inequality."

Ordering Fractions

Example 1 Use a number line to order $\frac{3}{2}$, $\frac{3}{4}$, 0, $1\frac{2}{3}$, and $\frac{1}{6}$ from least to greatest.

$$0 \qquad \frac{1}{6}=\frac{2}{12} \qquad \frac{3}{4}=\frac{9}{12} \qquad \frac{3}{2}=\frac{18}{12} \qquad 1\frac{2}{3}=\frac{20}{12}$$

| 0 | $\frac{2}{12}$ | $\frac{4}{12}$ | $\frac{6}{12}$ | $\frac{8}{12}$ | $\frac{10}{12}$ | 1 | $\frac{14}{12}$ | $\frac{16}{12}$ | $\frac{18}{12}$ | $\frac{20}{12}$ | $\frac{22}{12}$ | 2 |
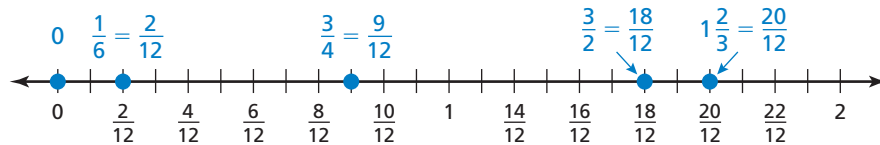
Write each of the numbers using a common denominator.

Try It Yourself

Use a number line to order the numbers from least to greatest.

1. $1, \frac{3}{5}, \frac{3}{20}, \frac{3}{4}, \frac{7}{10}$

2. $\frac{1}{4}, \frac{13}{12}, \frac{5}{6}, \frac{5}{12}, \frac{1}{2}$

Comparing Numbers

Complete the number sentence with <, >, or =.

Example 2 10 ▢ 15

On a number line, 10 is closer to zero than 15.

∴ So, 10 < 15.

Example 3 0.875 ▢ $\frac{7}{8}$

$$0.875 = \frac{875}{1000} = \frac{875 \div 125}{1000 \div 125} = \frac{7}{8}$$

∴ So, $0.875 = \frac{7}{8}$.

Example 4 Find three numbers that make the number sentence $1\frac{2}{5} \leq$ ▢ true.

∴ *Sample answer:* $1\frac{3}{5}, \frac{5}{2}, 2$

Try It Yourself

Complete the number sentence with <, >, or =.

3. 2.01 ▢ 2.001

4. 4.5 ▢ $\frac{9}{2}$

5. π ▢ 3.2

Find three numbers that make the number sentence true.

6. $\frac{17}{2} \leq$ ▢

7. $1\frac{1}{2} >$ ▢

8. $0.75 \geq$ ▢