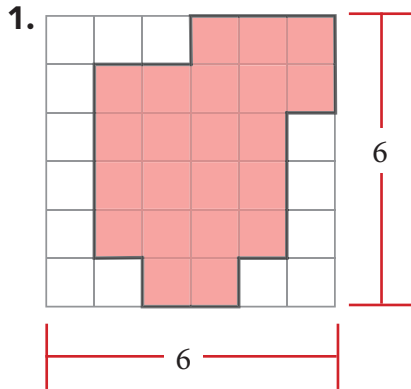


Objective Identifying and Ordering Rational Numbers

Warm-Up



Determine the fraction represented by the shaded part of each grid. If necessary, rewrite in lowest terms.



Sample worked out



1. Collect information

$$6 \times 6 = 36 \text{ total blocks}$$

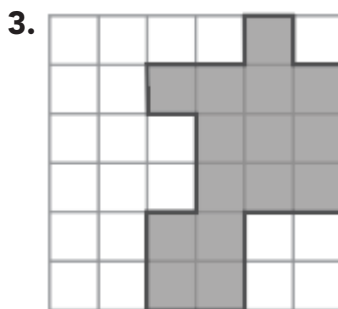
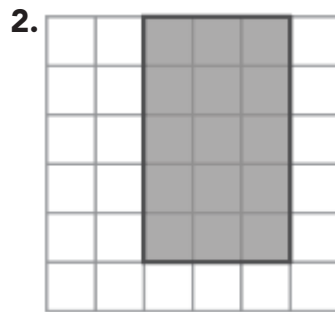
$$22 = \text{shaded blocks}$$

2. Set up fraction

$$\frac{22 \text{ shaded blocks}}{36 \text{ total blocks}} = \frac{22}{36}$$

3. Simplify the fraction

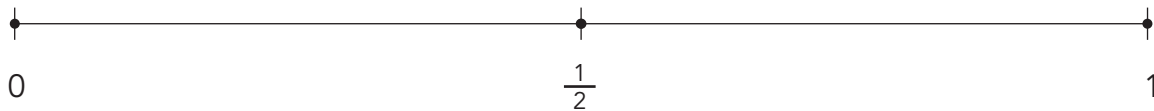
$$\frac{22 \div 2}{36 \div 2} = \frac{11}{18}$$





Benchmark fractions are common fractions you can use to estimate the value of fractions.

Three common benchmark fractions are



A fraction is close to 0 when the numerator is very small compared to the denominator.

A fraction is close to $\frac{1}{2}$ when the numerator is about half the size of the denominator.

A fraction is close to 1 when the numerator is very close in size to the denominator.

1. Name the closest benchmark fraction for each fraction given.

a. $\frac{4}{9}$

b. $\frac{8}{9}$

c. $\frac{6}{9}$

d. $\frac{5}{67}$

e. $\frac{7}{15}$

f. $\frac{7}{12}$

g. $\frac{5}{6}$

h. $\frac{14}{27}$

i. $\frac{12}{13}$

j. $\frac{1}{17}$

k. $\frac{5}{11}$

l. $\frac{3}{7}$

2. Write the unknown numerator or denominator so that each fraction is close to but greater than 0.

a. $\frac{(\quad)}{12}$

b. $\frac{(\quad)}{27}$

c. $\frac{8}{(\quad)}$

d. $\frac{7}{(\quad)}$

3. Write the unknown numerator or denominator so that each fraction is close to but less than $\frac{1}{2}$.

a. $\frac{(\quad)}{12}$

b. $\frac{(\quad)}{27}$

c. $\frac{8}{(\quad)}$

d. $\frac{7}{(\quad)}$

4. Write the unknown numerator or denominator so that each fraction is close to but less than 1.

a. $\frac{(\quad)}{12}$

b. $\frac{(\quad)}{27}$

c. $\frac{8}{(\quad)}$

d. $\frac{7}{(\quad)}$

5. Describe the relationship between a and b when the fraction $\frac{a}{b}$ is:

a. close to 0.

b. close to $\frac{1}{2}$

c. close to 1.

6. Compare each pair of fractions using benchmark fractions. Insert a $>$ or $<$, symbol to make the inequality true. Explain your reasoning.

a. $\frac{11}{12}$ _____ $\frac{5}{9}$

a. $\frac{5}{9}$ _____ $\frac{5}{7}$

b. $\frac{7}{13}$ _____ $\frac{5}{11}$

b. $\frac{5}{10}$ _____ $\frac{7}{10}$



Felipe and Corinne ordered the rational numbers 0.8, 0.06, and $\frac{3}{5}$ from least to greatest using different strategies. Felipe used benchmark numbers, and Corinne used equivalent fractions.

1. Use Felipe's strategy of benchmark numbers to order the rational numbers from least to greatest.

2. Use Corinne's strategy of equivalent fractions to order the rational numbers from least to greatest.

3. Use any strategy to order the rational numbers 0.6, $\frac{3}{4}$, and $\frac{3}{8}$ from least to greatest.

4. List the fractions in each set in ascending order.

a. $\frac{1}{8}, \frac{1}{11}, \frac{1}{9}, \frac{1}{4}, \frac{1}{7}, \frac{1}{5}$

b. $\frac{4}{5}, \frac{4}{10}, \frac{4}{12}, \frac{4}{7}$

c. $\frac{3}{8}, \frac{3}{11}, \frac{3}{9}, \frac{3}{4}, \frac{3}{7}, \frac{3}{5}$

5. What do the fractions in each part of Question 4 have in common? Explain how you determined the order of the fractions in each.

Show You KNOW

Close to Half

Consider the fractions shown.

$$\frac{5}{9}, \frac{7}{13}, \frac{2}{7}, \frac{10}{11}$$

1. Write the fractions in ascending order. Use what you know about benchmark fractions to determine the order.
Explain your reasoning.



LESSON 2.1b Thinking Rationally



Objective Identifying and Ordering Rational Numbers

Practice

Order the rational numbers in each group from least to greatest.

1. $0.09, 0.1, \frac{2}{25}$

2. $\frac{5}{6}, \frac{5}{8}, \frac{3}{2}$

3. $0.55, \frac{3}{5}, \frac{2}{3}$

4. $4.2, 3.10, 4\frac{1}{8}, 3.01, 2.3, 2\frac{4}{5}, 3.017$

5. $6.84, 8\frac{5}{7}, 6.34, 6\frac{1}{4}, 8\frac{3}{10}, 8.15$

6. $1.98, 0.23, 0, 1.89, 1\frac{3}{5}, 1.02, \frac{3}{2}$

7. $2.35, 2.54, 2.01$

8. $9.3, 5\frac{3}{5}, 9.90, 9\frac{8}{11}, 3.78, 3.9, 5\frac{1}{6}$

9. $0.02, 0, 6.98, 2\frac{1}{16}, 2.2, 6.89, 2.01$

Spiral Review

Calculate the following areas show ALL calculations

