Comparing and Ordering Fractions

Name: _____ Class: _____ Date: _____

Compare and order fractions, then explain your reasoning using calculations, diagrams and a number line.

Quick reminders

- Same denominator: the larger numerator gives the larger fraction.
- Same numerator: for positive fractions, the smaller denominator gives the larger fraction.
- Different numerators and denominators: rewrite using a common denominator.
- Least to greatest: smallest first. Greatest to least: largest first.
- Use equal-sized wholes when comparing fraction diagrams.
- Symbols: < means less than; > means greater than; = means equal to.

A Same denominator 6 marks

Write <, > or = in each space. One mark each.

1. $\frac{3}{8}$ _____ $\frac{5}{8}$
2. $\frac{7}{10}$ _____ $\frac{4}{10}$
3. $\frac{5}{12}$ _____ $\frac{5}{12}$
4. $\frac{2}{9}$ _____ $\frac{8}{9}$
5. $\frac{11}{15}$ _____ $\frac{9}{15}$
6. $\frac{6}{7}$ _____ $\frac{3}{7}$

B Same numerator 6 marks

Write <, > or = in each space. One mark each.

1. $\frac{1}{3}$ _____ $\frac{1}{6}$
2. $\frac{3}{8}$ _____ $\frac{3}{5}$
3. $\frac{5}{6}$ _____ $\frac{5}{9}$
4. $\frac{2}{7}$ _____ $\frac{2}{3}$
5. $\frac{4}{11}$ _____ $\frac{4}{9}$
6. $\frac{7}{10}$ _____ $\frac{7}{12}$

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Comparisons and Ordering

Show your working clearly.

C Use common denominators 8 marks

Rewrite each pair using a common denominator, then compare. Two marks each.

1. Compare $\frac{2}{3}$ and $\frac{3}{4}$. Common denominator: _____

   $\frac{2}{3}$ = _____ $\frac{3}{4}$ = _____ Therefore: $\frac{2}{3}$ ____ $\frac{3}{4}$

2. Compare $\frac{5}{6}$ and $\frac{7}{9}$. Common denominator: _____

   $\frac{5}{6}$ = _____ $\frac{7}{9}$ = _____ Therefore: $\frac{5}{6}$ ____ $\frac{7}{9}$

3. Compare $\frac{3}{5}$ and $\frac{7}{10}$. Common denominator: _____

   $\frac{3}{5}$ = _____ $\frac{7}{10}$ = _____ Therefore: $\frac{3}{5}$ ____ $\frac{7}{10}$

4. Compare $\frac{4}{6}$ and $\frac{6}{9}$. Common denominator: _____

   $\frac{4}{6}$ = _____ $\frac{6}{9}$ = _____ Therefore: $\frac{4}{6}$ ____ $\frac{6}{9}$

D Put fractions in order 8 marks

Two marks each. Show calculations for Questions 3 and 4.

1. Least to greatest: $\frac{5}{8}, \frac{1}{8}, \frac{7}{8}, \frac{3}{8}$

_____

2. Greatest to least: $\frac{3}{10}, \frac{3}{4}, \frac{3}{8}, \frac{3}{5}$

_____

3. Least to greatest: $\frac{2}{3}, \frac{1}{2}, \frac{3}{4}$

_____

_____

4. Greatest to least: $\frac{5}{6}, \frac{7}{12}, \frac{2}{3}$

_____

_____

Comparing and Ordering Fractions

Explain and Apply

Use diagrams, a number line and calculations to justify your answers.

E Explain and represent 8 marks

1. Draw two equal-sized rectangles. Divide each into 6 equal parts. Shade $\frac{2}{6}$ of the first and $\frac{5}{6}$ of the second. Write a comparison using < or >. (3 marks)

Comparison: _____

2. Draw a number line from 0 to 1 with 8 equal intervals. Label $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{7}{8}$ in their correct positions. (3 marks)

3. Sam says, "$\frac{3}{8}$ is greater than $\frac{3}{5}$ because 8 is greater than 5." Is Sam correct? Explain your answer. (2 marks)

_____

_____

F Apply your skills 4 marks

1. Mia has read $\frac{3}{4}$ of her book. Leo has read $\frac{5}{8}$ of his book. Who has read the greater fraction of their book? Show a calculation. (2 marks)

_____

_____

2. Three ribbons have lengths of $\frac{2}{3}$ m, $\frac{3}{4}$ m and $\frac{5}{6}$ m. Order their lengths from shortest to longest. Show your working. (2 marks)

_____

_____

Comparing and Ordering Fractions

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Teacher Answer Key

Comparing and Ordering Fractions • 40 marks

A Same denominator 6 marks

1. $\frac{3}{8} < \frac{5}{8}$ 2. $\frac{7}{10} > \frac{4}{10}$ 3. $\frac{5}{12} = \frac{5}{12}$
4. $\frac{2}{9} < \frac{8}{9}$ 5. $\frac{11}{15} > \frac{9}{15}$ 6. $\frac{6}{7} > \frac{3}{7}$

Award 1 mark each. Equal denominators represent equal-sized pieces, so compare numerators.

B Same numerator 6 marks

1. $\frac{1}{3} > \frac{1}{6}$ 2. $\frac{3}{8} < \frac{3}{5}$ 3. $\frac{5}{6} > \frac{5}{9}$
4. $\frac{2}{7} < \frac{2}{3}$ 5. $\frac{4}{11} < \frac{4}{9}$ 6. $\frac{7}{10} > \frac{7}{12}$

Award 1 mark each. For equal-sized wholes, fewer equal parts means larger pieces.

C Common denominators 8 marks

1. $\frac{2}{3} = \frac{8}{12}$ and $\frac{3}{4} = \frac{9}{12}$, so $\frac{2}{3} < \frac{3}{4}$.
2. $\frac{5}{6} = \frac{15}{18}$ and $\frac{7}{9} = \frac{14}{18}$, so $\frac{5}{6} > \frac{7}{9}$.
3. $\frac{3}{5} = \frac{6}{10}$ and $\frac{7}{10} = \frac{7}{10}$, so $\frac{3}{5} < \frac{7}{10}$.
4. $\frac{4}{6} = \frac{12}{18}$ and $\frac{6}{9} = \frac{12}{18}$, so $\frac{4}{6} = \frac{6}{9}$.

For each question: 1 mark for correct equivalent fractions and 1 for the comparison. Accept any valid common denominator.

D Ordering fractions 8 marks

1. $\frac{1}{8} < \frac{3}{8} < \frac{5}{8} < \frac{7}{8}$
2. $\frac{3}{4} > \frac{3}{5} > \frac{3}{8} > \frac{3}{10}$

Questions 1–2: 2 marks for correct order; 1 mark if one swap of neighbouring fractions corrects the order.

3. $\frac{1}{2} = \frac{6}{12}$, $\frac{2}{3} = \frac{8}{12}$, $\frac{3}{4} = \frac{9}{12}$. Therefore: $\frac{1}{2} < \frac{2}{3} < \frac{3}{4}$.
4. $\frac{5}{6} = \frac{10}{12}$, $\frac{2}{3} = \frac{8}{12}$, $\frac{7}{12} = \frac{7}{12}$. Therefore: $\frac{5}{6} > \frac{2}{3} > \frac{7}{12}$.

Questions 3–4: 1 mark for valid working and 1 for correct order.

Comparing and Ordering Fractions

Teacher Answer Key Continued

Diagrams, reasoning and applications

E Explain and represent 8 marks

1. Fraction diagrams (3 marks)

• Two equal-sized rectangles, each divided into 6 equal parts. (1)

• Correct shading of 2 parts and 5 parts. (1)

• Correct comparison: $\frac{2}{6} < \frac{5}{6}$, or $\frac{5}{6} > \frac{2}{6}$. (1)

2. Number line (3 marks)

Award 1 mark per correctly positioned fraction on an evenly divided number line:

• $\frac{1}{4} = \frac{2}{8}$: second division after 0.

• $\frac{1}{2} = \frac{4}{8}$: fourth division after 0.

• $\frac{7}{8}$: seventh division after 0.

3. Sam's mistake (2 marks)

Sam is incorrect: $\frac{3}{8} < \frac{3}{5}$. (1) With equal numerators and equal-sized wholes, fifths are larger than eighths, so three fifths is greater than three eighths. (1)

Accept a correct calculation instead: $\frac{3}{8} = \frac{15}{40}$ and $\frac{3}{5} = \frac{24}{40}$; therefore $\frac{15}{40} < \frac{24}{40}$.

F Apply your skills 4 marks

1. Mia has read the greater fraction. (1) Since $\frac{3}{4} = \frac{6}{8}$ and $\frac{6}{8} > \frac{5}{8}$. (1)

This compares fractions completed. It does not establish who has read more pages unless the books have equal numbers of pages.

2. Common denominator working: $\frac{2}{3} = \frac{8}{12}$, $\frac{3}{4} = \frac{9}{12}$ and $\frac{5}{6} = \frac{10}{12}$. (1)

Shortest to longest: $\frac{2}{3}$ m, $\frac{3}{4}$ m, $\frac{5}{6}$ m. (1)