

CONCISE ANSWER KEY | FP-01

Fraction Pathway

From First Fractions to Confident Fraction Thinking

Open-ended explanations may be worded differently. Accept mathematically correct reasoning that shows the intended idea.

ANSWER KEY

Sections 1–4

1. What Is a Fraction?

A. $\frac{1}{2}$ B. $\frac{3}{4}$ C. $\frac{2}{5}$ D is the correct model.

F. Sample: A fraction names equal-sized parts of one whole; unequal parts would not represent the same unit fraction.

2. Numerator and Denominator

1. 3 2. 5 3. 5 4. 3.

5. The whole is divided into 7 equal parts.

6. 4 of those equal parts are selected.

3. Fractions of Shapes and Sets

A. $\frac{4}{6}$ B. $\frac{3}{8}$ C. $\frac{7}{10}$ D. $\frac{3}{8}$ E. $\frac{6}{10}$.

F. Red = $\frac{5}{12}$; blue = $\frac{7}{12}$.

G. $\frac{5}{12} + \frac{7}{12} = \frac{12}{12} = 1$.

H. Any 2 of 5 equal parts shaded. I. Any 3 of 4 equal parts shaded.

4. Fractions on a Number Line

A. $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$.

B. $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, $\frac{5}{6}$.

1. $\frac{3}{4}$ 2. $\frac{1}{2}$ 3. $\frac{1}{4} < \frac{1}{2} < \frac{3}{4}$.

4. Thirds: ticks at $\frac{1}{3}$ and $\frac{2}{3}$ between 0 and 1.

ANSWER KEY

Sections 5–8

5. Same Denominator

1. $<$ 2. $>$ 3. $=$ 4. $<$ 5. $>$ 6. $<$.
7. The eighths are the same size; 7 eighths is more than 5 eighths.

6. Same Numerator

1. $>$ 2. $>$ 3. $<$ 4. $<$.
5. smaller.
6. Fifths are larger pieces than eighths, so 3 fifths is greater than 3 eighths.

7. Equivalent Fractions

1. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$.
2. $\frac{4}{6}$ 3. $\frac{6}{8}$ 4. $\frac{4}{10}$.
5–7: $\frac{1}{2} \leftrightarrow \frac{3}{6}$ (B); $\frac{3}{4} \leftrightarrow \frac{6}{8}$ (A); $\frac{2}{3} \leftrightarrow \frac{4}{6}$ (C).
8. 15 9. 8 10. 5.
11. The number and size of the parts changed; the total amount stayed the same.

8. Simplifying Fractions

1. $\frac{1}{2}$ 2. $\frac{1}{2}$ 3. $\frac{1}{2}$ 4. $\frac{3}{5}$ 5. $\frac{2}{3}$ 6. $\frac{2}{3}$
7. $\frac{3}{4}$ 8. $\frac{3}{4}$ 9. $\frac{3}{4}$
10. Common factor 6; $\frac{2}{3}$.
11. Common factor 5; $\frac{3}{5}$.
12. No; $\frac{2}{3}$.

ANSWER KEY

Sections 9–12

9. Different Denominators

1. $>$ 2. $>$ 3. $>$.

4. $\frac{3}{4}$ is greater. One benchmark argument: $\frac{3}{4}$ is $\frac{1}{4}$ away from 1, while $\frac{7}{10}$ is $\frac{3}{10}$ away from 1; $\frac{1}{4} < \frac{3}{10}$, so $\frac{3}{4}$ is closer to 1.

5. $\frac{2}{3} = \frac{8}{12}$, $\frac{3}{4} = \frac{9}{12}$, so $\frac{2}{3} < \frac{3}{4}$.

6. $\frac{3}{5} = \frac{6}{10} < \frac{7}{10}$.

7. Common denominator 18: $\frac{5}{6} = \frac{15}{18}$ and $\frac{7}{9} = \frac{14}{18}$, so $\frac{5}{6} > \frac{7}{9}$.

8. Benchmark reasoning is efficient: $\frac{4}{9} < \frac{1}{2}$ because half of 9 would be 4.5 ninths. Equivalent-fraction reasoning is also valid.

10. Add/Subtract Same Denominator

A. $\frac{5}{8}$ B. $\frac{3}{6} = \frac{1}{2}$.

1. $\frac{5}{7}$ 2. $\frac{6}{9} = \frac{2}{3}$ 3. $\frac{6}{12} = \frac{1}{2}$

4. $\frac{4}{8} = \frac{1}{2}$ 5. $\frac{7}{10}$ 6. $\frac{7}{11}$.

7. The eighths remain eighths; only the number of eighth-sized parts changes.

8. Answers vary; check same denominator 6 and correct sum.

11. Add/Subtract Different Denominators

1. $\frac{1}{2} = \frac{2}{4}$; $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$.

2. $\frac{2}{3} = \frac{4}{6}$; answer $\frac{5}{6}$.

3. $\frac{3}{4} = \frac{6}{8}$; answer $\frac{5}{8}$.

4. $\frac{2}{5} = \frac{4}{10}$; answer $\frac{7}{10}$.

5. Common denominator 12: $\frac{3}{4} = \frac{9}{12}$, $\frac{2}{3} = \frac{8}{12}$; sum $\frac{17}{12} = 1\frac{5}{12}$.

6. Common denominator 12: $\frac{10}{12} - \frac{3}{12} = \frac{7}{12}$.

12. Improper Fractions and Mixed Numbers

1. $2\frac{1}{2}$ 2. $1\frac{3}{4}$ 3. $3\frac{2}{3}$

4. $\frac{3}{2}$ 5. $\frac{11}{4}$ 6. $\frac{10}{3}$.

7. $\frac{9}{4}$ is greater because $\frac{9}{4} = 2\frac{1}{4}$.

ANSWER KEY

Sections 13–15

13. Multiplying Fractions

1. $\frac{3}{8}$.
2. $\frac{1}{5}$ 3. $\frac{1}{2}$ 4. $\frac{3}{10}$ 5. $\frac{3}{7}$.
6. Smaller. Taking one-half of a positive amount less than or equal to 1 gives only part of that amount.

14. Dividing Fractions

1. 4 2. 3 3. 2 4. 2.
5. It asks how many one-fourth-size pieces fit into three-fourths; the answer is 3.

15. Fraction Challenge

1. $\frac{5}{8} < \frac{2}{3} < \frac{3}{4}$.
2. $\frac{5}{6} - \frac{1}{4} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$.
3. $2\frac{1}{2} + \frac{3}{4} = 2\frac{2}{4} + \frac{3}{4} = 3\frac{1}{4}$.
4. $\frac{3}{8} + \frac{1}{4} = \frac{3}{8} + \frac{2}{8} = \frac{5}{8}$ of the bottle.
5. $\frac{4}{9} > \frac{5}{12}$ because a common denominator of 36 gives $\frac{16}{36} > \frac{15}{36}$. Other correct reasoning is acceptable.

USING THE PATHWAY

A pause point is useful information. If errors cluster in one section, review the underlying idea before moving farther down the pathway.