ALBERT

Name _____ Date _____

Decomposing Fractions Worksheet

Grade 4 · Common Core 4.NF.B.3b

> Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.

Practice

Builds the skill step by step.

1. Fill in the box: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{\square}{8}$

2. Fill in the box: $\frac{5}{6} = \frac{2}{6} + \frac{\square}{6}$

3. Which is a correct way to break apart $\frac{4}{5}$?

   A. $\frac{1}{5} + \frac{3}{5}$

   B. $\frac{1}{5} + \frac{3}{10}$

   C. $\frac{2}{5} + \frac{3}{5}$

   D. $\frac{4}{10} + \frac{0}{5}$

4. Fill in the box: $\frac{7}{10} = \frac{3}{10} + \frac{\square}{10}$

5. Fill in the box: $\frac{4}{4} = \frac{1}{4} + \frac{1}{4} + \frac{\square}{4}$

6. Fill in the box: $\frac{6}{12} = \frac{1}{12} + \frac{\square}{12}$

7. Which sum does NOT equal $\frac{5}{8}$?

   A. $\frac{4}{8} + \frac{2}{8}$

   B. $\frac{2}{8} + \frac{3}{8}$

   C. $\frac{1}{8} + \frac{4}{8}$

   D. $\frac{1}{8} + \frac{1}{8} + \frac{3}{8}$

8. Fill in the box: $2\frac{1}{4} = 1 + 1 + \frac{\square}{4}$

9. Fill in the box: $\frac{8}{10} = \frac{4}{10} + \frac{\square}{10}$

10. How many copies of $\frac{1}{6}$ add up to $\frac{5}{6}$?

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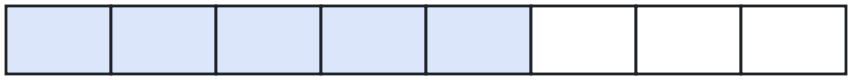
On Level

Grade-level practice.

1. Fill in the box: $1\frac{3}{8} = \frac{8}{8} + \frac{\square}{8}$

2. Fill in the box: $\frac{9}{12} = \frac{2}{12} + \frac{3}{12} + \frac{\square}{12}$

3. The shaded part of the bar is made of a group of 2 eighths and a group of 3 eighths. Which equation matches?



A. $\frac{5}{8} = \frac{2}{4} + \frac{3}{4}$

B. $\frac{5}{8} = \frac{2}{8} + \frac{3}{16}$

C. $\frac{5}{8} = \frac{2}{8} + \frac{3}{8}$

D. $\frac{8}{8} = \frac{5}{8} + \frac{2}{8}$

4. Fill in the box: $2\frac{2}{3} = 1 + 1 + \frac{\square}{3}$

5. Fill in the box: $\frac{11}{6} = 1 + \frac{\square}{6}$

6. Which is a correct way to break apart $\frac{6}{10}$?

   A. $\frac{2}{10} + \frac{2}{10} + \frac{2}{10}$

   B. $\frac{3}{10} + \frac{2}{10}$

   C. $\frac{3}{5} + \frac{3}{5}$

   D. $\frac{6}{5} + \frac{0}{10}$

7. Fill in the box: $\frac{7}{8} = \frac{1}{8} + \frac{2}{8} + \frac{\square}{8}$

8. Fill in the box: $3\frac{1}{2} = 1 + 1 + 1 + \frac{\square}{2}$

9. Fill in the box: $\frac{12}{12} = \frac{5}{12} + \frac{\square}{12}$

10. How many different ways can you write $\frac{3}{4}$ as the sum of two fractions in fourths, where neither fraction is zero? Count $\frac{1}{4} + \frac{2}{4}$ and $\frac{2}{4} + \frac{1}{4}$ as the same way.

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Challenge

Multi-step and word problems that stretch it.

1. Fill in the box: $2\frac{3}{5} = \frac{\square}{5} + \frac{3}{5}$

2. Fill in the box: $1\frac{1}{4} = \frac{\square}{4}$

3. Zoe wrote $\frac{4}{6} = \frac{2}{3} + \frac{2}{3}$. What is wrong?

   A. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$, which is more than 1. She could write $\frac{4}{6} = \frac{2}{6} + \frac{2}{6}$.

   B. Nothing is wrong.

   C. She should have written $\frac{4}{6} = \frac{4}{3} + \frac{0}{3}$.

   D. She should have added the bottom numbers: $\frac{4}{6}$.

4. Fill in the box: $\frac{9}{8} = 1 + \frac{\square}{8}$

5. Fill in the box: $3\frac{3}{4} = \frac{\square}{4} + \frac{3}{4}$

6. Fill in the box: $\frac{10}{12} = \frac{4}{12} + \frac{4}{12} + \frac{\square}{12}$

7. Ali walked $\frac{7}{10}$ of a mile in two parts. The first part was $\frac{3}{10}$ of a mile. How long was the second part?

8. Which shows $2\frac{1}{8}$ using only eighths?

   A. $\frac{2}{8} + \frac{1}{8}$

   B. $\frac{8}{8} + \frac{8}{8} + \frac{1}{8}$

   C. $\frac{16}{8} + \frac{8}{8}$

   D. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

9. $\frac{5}{5} + \frac{5}{5} + \frac{2}{5}$ equals how many wholes and $\frac{2}{5}$? Give the number of wholes.

10. Fill in the box: $\frac{17}{12} = 1 + \frac{\square}{12}$