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Module 6 Computational Fluency of Fractions
Lesson 2 Adding Fractions with Unlike Denominators

Challenge Problems

6.2

Set 1

1 Grace added $\frac{4}{5}$ and $\frac{1}{4}$ and said that the answer was $\frac{5}{9}$. Find and explain Grace's error.

2 Joel found $\frac{2}{3} + \frac{3}{4}$ using 12 as the common denominator. Josiah found $\frac{2}{3} + \frac{3}{4}$ using 24 as the common denominator. Show how both Joel and Josiah got the same answer.

Possible Answers

Set 1

1. Grace added the numerators to find the numerator of the sum and added the denominators to find the denominator of the sum. Grace should have found a common denominator before adding. The correct solution follows:

$$\begin{aligned}\frac{4}{5} + \frac{1}{4} &= \frac{4 \cdot 4}{5 \cdot 4} + \frac{1 \cdot 5}{4 \cdot 5} \\ &= \frac{16}{20} + \frac{5}{20} = \frac{21}{20} = 1\frac{1}{20}\end{aligned}$$

2. Joel used the least common denominator, 12.

$$\begin{aligned}\frac{2}{3} + \frac{3}{4} \\ \frac{2 \cdot 4}{3 \cdot 4} + \frac{3 \cdot 3}{4 \cdot 3} \\ \frac{8}{12} + \frac{9}{12} \\ \frac{17}{12} \\ 1\frac{5}{12}\end{aligned}$$

Josiah used another common denominator, 24.

$$\begin{aligned}\frac{2}{3} + \frac{3}{4} \\ \frac{2 \cdot 8}{3 \cdot 8} + \frac{3 \cdot 6}{4 \cdot 6} \\ \frac{16}{24} + \frac{18}{24} \\ \frac{34}{24} \\ 1\frac{10}{24} \\ 1\frac{5}{12}\end{aligned}$$