Subtracting Fractions
Use What You've Learned
Answers and Explanations

For each of the following problems, try to calculate the result mentally. If you need to, make a diagram to help.

1. Hank had a piece of crimson glass that was $5\frac{3}{8}$ inches long. After cutting a piece for his project, Hank gave the remaining $2\frac{3}{4}$ inches to Jacob for use in a pendant. How long was the piece of crimson glass that Hank cut for his project?

   $5\frac{3}{8} - 2\frac{3}{4}$ Subtract to find how much glass Hank cut for his project.

   $2\frac{3}{4} = 2\frac{6}{8}$ A common denominator is eight, so rename $2\frac{3}{4}$.

   $5\frac{3}{8} = 4\frac{11}{8}$ Rename $5\frac{3}{8}$. One whole is equal to $\frac{8}{8}$, so divide one of the five wholes into eight equal parts. $5\frac{3}{8}$ is equal to $4\frac{11}{8}$.

   $4\frac{11}{8} - 2\frac{6}{8} = 2\frac{5}{8}$ Subtract the whole numbers and subtract the fractions.

   Hank used $2\frac{5}{8}$ inches of crimson glass for his project.

2. For the lunch break, the gang ordered two large pepperoni pizzas and two large supreme pizzas. They ate $1\frac{7}{12}$ pepperoni and $1\frac{1}{3}$ supreme pizzas. How much more of the pepperoni pizzas were eaten?

   $1\frac{7}{12} - 1\frac{1}{3}$ Compare the two amounts of pizza and subtract to find how much more pepperoni pizza the gang ate.

   $1\frac{1}{3} = 1\frac{4}{12}$ A common denominator is 12, so rename $1\frac{1}{3}$.

   $1\frac{7}{12} - 1\frac{4}{12} = \frac{3}{12}$ Subtract the whole numbers and subtract the fractions.

   $\frac{3}{12} = \frac{1}{4}$ Rename $\frac{3}{12}$ to a fraction in simplest terms.

   The gang ate more pepperoni pizza by $\frac{1}{4}$ of a pizza.

3. Michael and Alex painted the living room. They started with 8 gallons of paint. They used $3\frac{5}{6}$ gallons in the living room. They used an additional $2\frac{1}{2}$ gallons in the hallway. How many gallons of paint remained?

Method 1: Use addition and subtraction

$3\frac{5}{6} + 2\frac{1}{2}$ Add to find the total amount of paint that Michael and Alex used.

$3\frac{5}{6} + 2\frac{3}{6} = 5\frac{8}{6}$ or $6\frac{1}{3}$ Rename $2\frac{1}{2}$ to $2\frac{3}{6}$ and add the mixed numbers. Rename $5\frac{8}{6}$.

$8 - 6\frac{1}{3} = 1\frac{2}{3}$ Subtract the amount of paint used from the amount they had at the start.

$1\frac{2}{3}$ gallons of paint remained.

Method 2: Use Subtraction

$8 - 3\frac{5}{6} = 4\frac{1}{6}$ Subtract the paint used in the living room.

$4\frac{1}{6} - 2\frac{1}{2}$ Subtract the paint used in the hallway.

$3\frac{7}{6} - 2\frac{3}{6} = 1\frac{4}{6}$ or $1\frac{2}{3}$ Rename $4\frac{1}{6}$ to $3\frac{7}{6}$ and rename $2\frac{1}{2}$ to $2\frac{3}{6}$. Subtract, and rename $1\frac{4}{6}$.

$1\frac{2}{3}$ gallons of paint remained.

4. Try to solve the following subtraction problems mentally. Describe the reasoning you use to determine each answer.

$\frac{7}{8} - \frac{1}{4}$ $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$ Rename $\frac{1}{4}$ to $\frac{2}{8}$, and subtract.

$1\frac{2}{3} - \frac{5}{6}$ $1\frac{4}{6} - \frac{5}{6} = \frac{5}{6}$ Rename $1\frac{2}{3}$ to $1\frac{4}{6}$. Subtract $\frac{4}{6}$ from $1\frac{4}{6}$. Then subtract the remaining $\frac{1}{6}$.

$2\frac{1}{2} - 1\frac{3}{10}$ $2\frac{5}{10} - 1\frac{3}{10} = 1\frac{2}{10}$ or $1\frac{1}{5}$ Rename $2\frac{1}{2}$ to $2\frac{5}{10}$, and subtract. Rename $1\frac{2}{10}$.

$2\frac{4}{7} - 1\frac{3}{14}$ $2\frac{8}{14} - 1\frac{3}{14} = 1\frac{5}{14}$ Rename $2\frac{4}{7}$ to $2\frac{8}{14}$, and subtract.