PROBLEM
SOLVED
MAKING SENSE OF MATHEMATICS

Mixed Numbers
Extend Your Learning
Answers and Explanations

Solve each problem and justify your answer.

1. Jacob and his sister shared the candy bars they gathered on Halloween. Each candy bar had eight sections. Jacob had eaten several sections before they decided to share. Altogether they had $12\frac{3}{4}$ candy bars. How many sections would Jacob and his sister each get?

   $12\frac{3}{4} = 12\frac{6}{8}$ — We need to know how many eighths are in $12\frac{3}{4}$ candy bars. This is the same as $12\frac{6}{8}$ candy bars.

   $12\frac{6}{8} = \frac{102}{8}$ — There are 96 sections in 12 candy bars (12 x 8 = 96). Ninety-six sections plus six sections (from $\frac{6}{8}$ of a candy bar) equals 102 sections of candy bar.

   $102 \div 2 = 51$ — Divide the total sections of candy bar by two people. Each person will get 51 pieces.

2. Ms. Cummings asked her first graders to record their ages as fractions using months as the denominators. Her oldest child was $7\frac{1}{6}$ years and her youngest was $5\frac{11}{12}$ years. How many months difference is there between the ages of the two children?

   $7\frac{1}{6} = 7\frac{2}{12}$ — There are 12 months in one year, so we are working with twelfths. Seven and one sixth years is the same as $7\frac{2}{12}$ years ($7\frac{1}{6} = 7\frac{2}{12}$).

   $7\frac{2}{12} = \frac{86}{12}$ — There are 84 months in seven years (7 x 12 = 84). Eighty-four months plus two months ($\frac{2}{12}$ year) equals 86 months. The oldest child is 86 months old.

   $5\frac{11}{12} = \frac{71}{12}$ — There are 60 months in five years (5 x 12 = 60). Sixty months plus 11 months ($\frac{11}{12}$ year) equals 71 months. The youngest child is 71 months old.

   $86 - 71 = 15$ — The oldest child is 15 months older than the youngest child in the class.

MakingSense

3. At the PTA meeting, ten pies were prepared for treats. Initially, each pie was cut into six pieces. After they served $4\frac{1}{2}$ pies, it appeared they would run out, so they cut each piece of the remaining pies into two pieces. If there was only one piece left at the end of the meeting, how many pieces were served?

$4\frac{1}{2} = 4\frac{3}{6}$ The PTA cut the first $4\frac{1}{2}$ pies into six pieces. This is the same as $4\frac{3}{6}$ pies.

$4\frac{3}{6} = \frac{27}{6}$ There are 24 pieces in four pies (4 x 6 = 24). Twenty-four pieces plus three pieces (from $\frac{3}{6}$ of a pie) equals 27 pieces of pie.

$5\frac{1}{2} = 5\frac{6}{12}$ The PTA cut the remaining $5\frac{1}{2}$ pies into 12 pieces. This is the same as $5\frac{6}{12}$ pies.

$5\frac{6}{12} = \frac{66}{12}$ There are 60 pieces in five pies (5 x 12 = 60). Sixty pieces plus six pieces (from $\frac{6}{12}$ of a pie) equals 66 pieces of pie.

$27 + 66 = 93$ Twenty-seven large pieces plus 66 small pieces equals a total of 93 pieces of pie.

$93 - 1 = 92$ One piece of pie was left over, so 92 pieces of pie were served.

4. At Myers Automotive, Jen and Jack order quarts of motor oil at the end of every month. They like to have at least 1000 cans on hand at the beginning of the month. They have 154 cans on hand. How many cases of 24 cans of oil should be ordered to make sure they have a total of 1000 cans on hand?

$1000 - 154 = 846$ They need 846 more cans.

$\frac{846}{24} = 35\frac{1}{4}$ Divide the number of cans by 24 to find the number of full cases (846 ÷ 24 = 35 r 6). The six remaining cans of oil equal $\frac{6}{24}$ case or $\frac{1}{4}$ case. They need $35\frac{1}{4}$ cases, so they should order 36 cases to be sure.