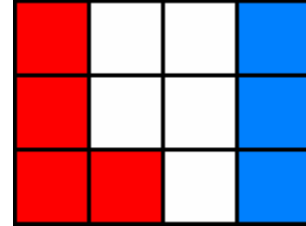


CHAPTER 1 Mathematical Processes
1.2 Focus on Communicating
Words, Diagrams, Symbols, and Correct Form

Example:

a) Explain how the diagram shown illustrates the addition of fractions.

b) Suki invented a symbolic numbering system. Each symbol always represents the same whole number. If $\diamond\diamond\bullet$ represents 9, what does $\diamond\bullet\bullet$ represent?



Solution:

a) There are 12 squares. Each square represents $\frac{1}{12}$ of the whole. There are 4 red squares. The red squares represent $\frac{4}{12} = \frac{1}{3}$ of the whole. There are 3 blue squares. The blue squares represent $\frac{3}{12} = \frac{1}{4}$ of the whole. There are 7 coloured squares. The coloured squares represent $\frac{7}{12}$ of the whole. The diagram shows that $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$.

b) If \diamond represents 4 and \bullet represents 1, then $\diamond\diamond\bullet$ represents $4 + 4 + 1 = 9$, as required. Then, $\diamond\bullet\bullet$ represents $4 + 1 + 1 = 6$.

Practice:

1. Which number is missing from the set 15, 35, 20, 5, 10, 30? Explain your strategy.

2. Ivanka has a pocketful of quarters, nickels and pennies. The total value of the coins is \$1.89. What is the minimum number of coins required to make this sum? Explain your reasoning.

Answers:

1. The missing number is 25. Write the numbers in order; they are multiples of 5.

2. You need at least 13 coins. Seven quarters give you \$1.75. Two nickels increase the total to \$1.85. Four pennies make up the required \$1.89.