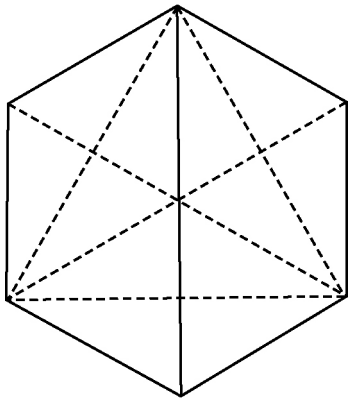
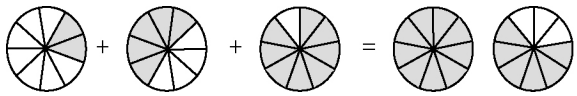
Chapter 6 Gifted and Enrichment Answers

1. Solutions will vary. It should be possible for the set of pattern blocks to be used for the fraction $\frac{1}{12}$. Example:



2.



$\frac{2}{9} + \frac{5}{9} + \frac{8}{9} = 1\frac{6}{9} = 1\frac{2}{3}$

3. There are 240 ÷ 20 = 12 tiles across the width of the wall. There are 250 ÷ 25 = 10 tiles along the height of the wall. Therefore, there are 12 × 10 = 120 tiles on the wall.

The fraction of grey tiles is $\frac{60}{120} = \frac{1}{2}$.

The fraction of blue tiles is $\frac{36}{120} = \frac{3}{10}$.

The fraction of patterned tiles is

$1 - \left(\frac{3}{10} + \frac{1}{2}\right) = \frac{10}{10} - \left(\frac{3}{10} + \frac{5}{10}\right) =$

$\frac{10}{10} - \frac{8}{10} = \frac{2}{10} = \frac{1}{5}$.

4. a) Yes, all four-digit palindrome numbers are divisible by 11. Explanations may vary. Example: All four-digit palindromes can be represented by *abba*, and $(a + b) - (b + a) = 0$, so the palindrome is divisible by 11. For example, for the palindrome 2442, $(2 + 4) - (4 + 2) = 0$.

b) No, not all five-digit palindromes are divisible by 11. Explanations may vary. Example: For a five-digit palindrome represented by *abcba*, if $(a + c + a) - (b + b) = 0$, the palindrome is divisible by 11. If the difference is not 0, the palindrome is not divisible by 11. For example, for the palindrome 13431, $(1 + 4 + 1) - (3 + 3) = 0$, but for the palindrome 13531, $(1 + 5 + 1) - (3 + 3) = 1$.

5. Weight of the jelly beans = 30 × 4 = 120 g
Weight of the wiggle worms = 25 × 6 = 150 g
Weight of the fizzle rockets = 50 × 3 = 150 g
Weight of the other type of candies = 630 g
Total weight of the bag of candies = 120 + 150 + 150 + 630 = 1050 g
Fraction of candies that are jelly beans = $\frac{120}{1050} = \frac{4}{35}$
Fraction of candies that are wiggle worms = $\frac{150}{1050} = \frac{1}{7}$
Fraction of candies that are fizzle rockets = $\frac{150}{1050} = \frac{1}{7}$
The fraction of the total amount of candies that are known types = $\frac{4}{35} + \frac{1}{7} + \frac{1}{7} =$

$\frac{4}{35} + \frac{5}{35} + \frac{5}{35} = \frac{14}{35} = \frac{2}{5}$