ANSWER KEY

SECTION I: OPERATIONS AND ALGEBRAIC THINKING

Lesson 1.1 Activity: Factor Pairs and Multiples

1. Answers will vary.
2. a. Answers will vary; b. Answers will vary.
3. a. All even numbers starting at 2 and ending with 100; b. All multiples of 3; c. All multiples of 4; d. All multiples of 5; e. All multiples of 6; f. All multiples of 7; g. All multiples of 8
4. Answers will vary.

Extend Your Thinking

1. 1, 4, 9, 16, 25, 36, 49, 64, 81, and 100
2. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
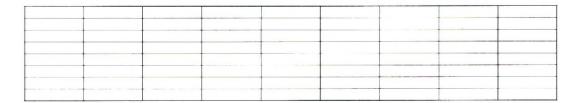
Lesson 1.1 Practice: Factor Pairs and Multiples

1. a. Aaron; b. Because composite numbers have more than one factor pair, Aaron is correct as 81 has two factor pairs. A prime number only has one factor pair:

c. There are no other ways in which the cars could be parked to form a rectangular array; d. Two cars would need to be added to make the number of cars in the parking lot a prime number. 83 is a prime number, and 83 has only one factor pair: 1 x 83.
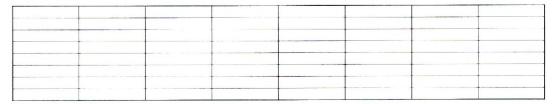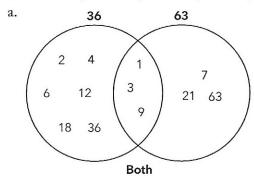
2. a.

b. The Brownings should choose the 8 x 9 array for the kitchen, because this design would allow their kitchen to be the most like a square. Most of the other designs would be too narrow for what they want, which is a kitchen that would be close to a square;

c. The Brownings would have a kitchen with 64 square feet because the array for this is the closest square number to 72. The array would be an 8 x 8 array:

3. 36: 1 and 36, 2 and 18, 3 and 12, 4 and 9, 6 and 6; 63: 1 and 63, 3 and 21, 7 and 9;

a.

b. For all numbers that are a multiple of 9, the sum of all of the digits will equal a multiple of nine.

4. a. $9 \times 11 = 99$ $(9 + 9 = 18)$, $9 \times 12 = 108$ $(1 + 0 + 8 = 9)$, $9 \times 13 = 117$ $(1 + 1 + 7 = 9)$. This generalization seems to be always true according to the work completed here; b. All multiples of 3 will have the sum of the digits equal to a multiple of 3, all multiples of 4 will have the last two digits of the number create a multiple of 4, and all multiples of 6 are multiples of both 2 and 3.

5. a. 40; b. 18; c. 81; d. Answers will vary.

Extend Your Thinking

1. Answers will vary.

Lesson 1.1: Common Core Assessment Practice

1. c
2. 2, 3, 5, 23, 89
3. b
4. a