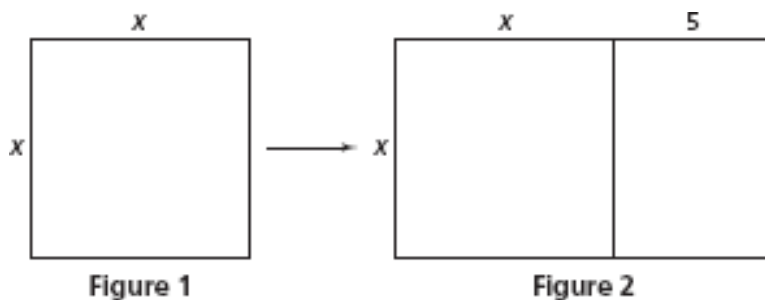**Frogs, Fleas, and Painted Cubes**

Check Up 2 for use after Investigation 2

1. Figure 2 was created from Figure 1.

Figure 1   Figure 2

    a. What is the area of Figure 1?

    b. Two of the expressions below are equivalent, each representing the area of Figure 2. Circle the two equivalent expressions.

    $x^2 + 5x$ $x^2 + 5$ $x(x + 5)$ $x + x + 5$

    c. For each expression you chose in part (b), explain how it represents the area of Figure 2.

    d. How much greater is the area of Figure 2 than the area of Figure 1 (in terms of x)?

2. Which of these four expressions represent a quadratic relationship? Circle your choice(s). Explain how you know.

    $x^2 + 5x$ $x^2 + 5$ $x(x + 5)$ $x + x + 5$

Frogs, Fleas, and Painted Cubes

Check Up 2 (continued)

3. a. Draw a rectangle divided to show that its area is represented by the expression $(x + 1)(x + 3)$. Label the lengths and areas on your drawing.

b. Write an equivalent expression in expanded form.

c. Find the x- and y-intercepts, maximum or minimum, and the line of symmetry of the graph of $A = (x + 1)(x + 3)$. Explain how you found them.

4. Find an equivalent expression in factored form for $x^2 + 8x + 15$.