

Problem-Based Task 1.3.3: Architectural Area**Coaching Sample Responses**

- a. What is an expression for a in terms of x ?

The length of a contains two labeled lengths: x and 65.

The sum of these two lengths, in inches, equals a : $(x + 65)$.

- b. What is an expression for b in terms of x ?

The length of b contains two labeled lengths: $2x$ and 30.

The sum of these two lengths, in inches, equals b : $(2x + 30)$.

- c. Using the formula for area and the expressions for a and b , write a formula for the area of the bathroom in terms of x .

Replace a and b in the formula with the expressions found in parts a and b.

$$A = ab = (x + 65)(2x + 30)$$

- d. What is the simplified expression for the area of the bathroom in terms of x ?

Find the product of the two polynomials.

Apply the Distributive Property, multiplying each term in the first polynomial by each term in the second polynomial.

$$(x + 65)(2x + 30) = 2x^2 + 30x + 130x + 1950$$

Simplify the expression by combining like terms.

$$2x^2 + 30x + 130x + 1950$$

$$= 2x^2 + 160x + 1950$$

The simplified expression for the area of the bathroom written in terms of x is $(2x^2 + 160x + 1950)$ inches².

Recommended Closure Activity

Select one or more of the essential questions for a class discussion or as a journal entry prompt.