Unit 7 Lesson 6: Rewriting Quadratic Expressions in Factored Form (Part 1)

1 Puzzles of Rectangles (Warm up)

Student Task Statement

Here are two puzzles that involve side lengths and areas of rectangles. Can you find the missing area in Figure A and the missing length in Figure B? Be prepared to explain your reasoning.

Figure A

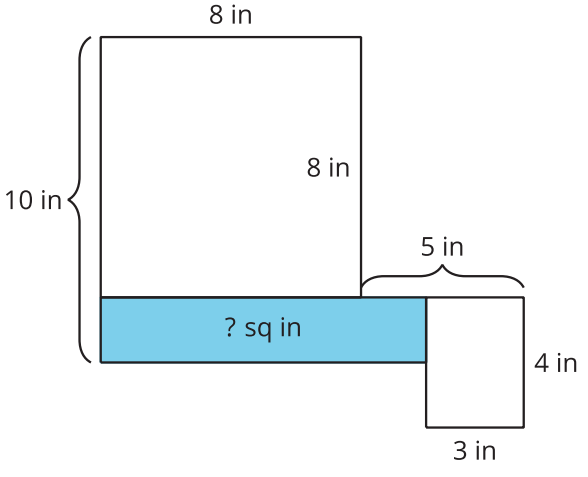
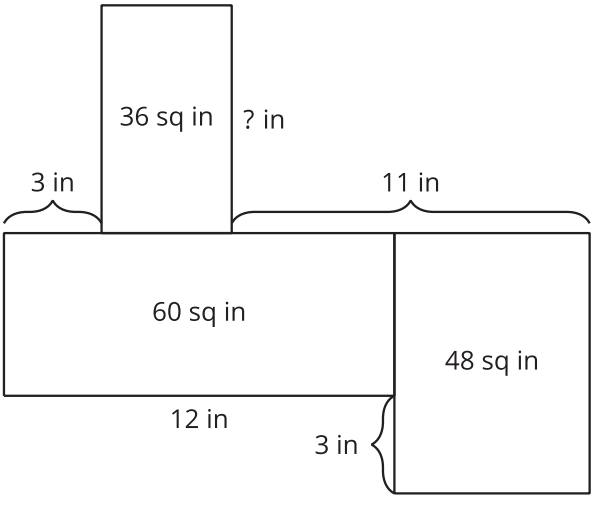


Figure B



2 Using Diagrams to Understand Equivalent Expressions

Student Task Statement

1. Use a diagram to show that each pair of expressions is equivalent.

   $x(x + 3)$ and $x^2 + 3x$

   $x(x + \text{-}6)$ and $x^2 - 6x$

   $(x + 2)(x + 4)$ and $x^2 + 6x + 8$

   $(x + 4)(x + 10)$ and $x^2 + 14x + 40$

   $(x + \text{-}5)(x + \text{-}1)$ and $x^2 - 6x + 5$

   $(x - 1)(x - 7)$ and $x^2 - 8x + 7$

2. Observe the pairs of expressions that involve the product of two sums or two differences. How is each expression in factored form related to the equivalent expression in standard form?

3 Let's Rewrite Some Expressions!

Student Task Statement

Each row in the table contains a pair of equivalent expressions.

Complete the table with the missing expressions. If you get stuck, consider drawing a diagram.

factored form	standard form
$x(x+7)$	
	x^2+9x
	x^2-8x
$(x+6)(x+2)$	
	$x^2+13x+12$
$(x-6)(x-2)$	
	$x^2-7x+12$
	x^2+6x+9
	$x^2+10x+9$
	$x^2-10x+9$
	x^2-6x+9
	$x^2+(m+n)x+mn$