

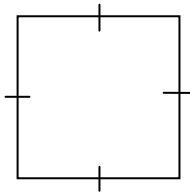
Worksheet 7-8: Find Dimensions Using Algebraic Modelling

1. Find the dimensions of each figure with the given expression for the area.

(a) Area = $x^2 - 12x + 32$



(b) Area = $x^2 + 14x + 49$



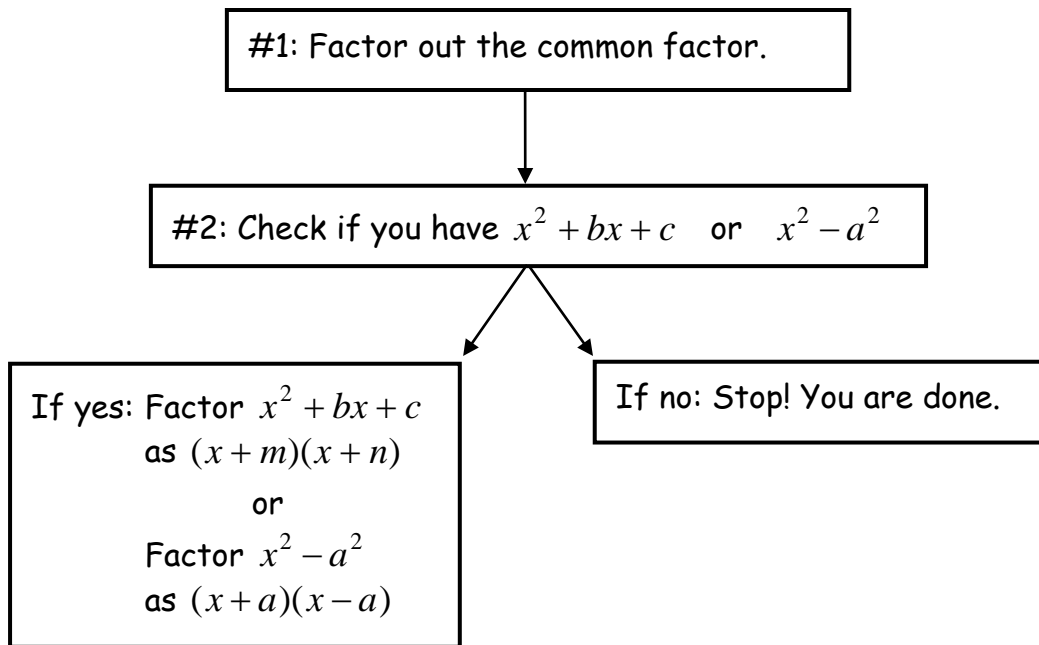
2. The area of a \$10 bill can be represented by the expression $x^2 - 25$.

(a) Find the expressions for the dimensions of the \$10 bill.

(b) Find the dimensions of the \$10 bill when $x = 12$ cm.

3. The area of a rectangular parking lot can be represented by the expression $x^2 - 18x + 81$.
- (a) Find the dimensions of the parking lot when $x = 100$ m.
- (b) What kind of a rectangle is the parking lot? Explain your answer.
4. The area of a rectangular room can be represented by the expression $x^2 + x - 12$. Find the dimensions of the room when $x = 10$ m.

Answers: 1. (a) $(x-4)(x-8)$, (b) $(x+7)^2$; 2. (a) $x-5)(x+5)$, (b) 17 cm by 7 cm;
3. (a) $(x-9)^2$, 91 m by 91 m, (b) Square; 4. $(y-3)(y+4)$, 14 m by 7 m

Worksheet 7-9: Factoring Fully**Example 1:**

Factor fully.

(a) $3x^2 + 15x + 18$

(b) $x^3 - 7x^2 + 10x$

(c) $4x^2 - 16$

Factor each polynomial fully.

2. $2x^2 + 18x + 16$

3. $x^3 - 7x^2 + 12x$

4. $4x^3 - 8x^2 - 60x$

5. $2y^2 - 98$

6. $2y^3 + 4y^2 - 48y$

Answers: **1.** (a) $3(x+2)(x+3)$, (b) $x(x-2)(x-5)$, (c) $4(x-2)(x+2)$; **2.** $2(x+1)(x+8)$; **3.** $x(x-3)(x-4)$;
4. $4x(x+3)(x-5)$; **5.** $2(y-7)(y+7)$; **6.** $2y(y+6)(y-4)$