

Warm Up:

Are these binomials the differences of two squares?

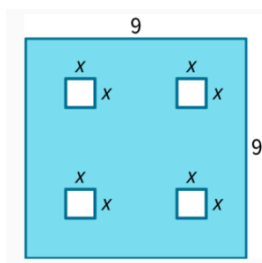
1) $5y^2 - 25$

2) $16g^2 - 36$

3) $c^2 + 25$

4) $x^2 - 49$

5) Find the area of the shaded region.



Speak Like A Mathematician:

difference of two squares: the _____ of one quantity _____ minus the _____ of another quantity.

perfect square trinomials: squares of _____.

Key Concept:

$a^2 - b^2 =$ _____ *or* _____

Example 1: Factoring Differences of Squares

Factor the following polynomials.

a) $x^2 - 9$

c) $1 - 144q^2$

b) $81v^2 - 64w^2$

d) $121p^2 - 36$

How can I meet today's standards?

*I can **factor special polynomials** by analyzing their structures*

Example 2: Factor More Than Once

Factor each polynomial completely.

a) $x^4 - 256$

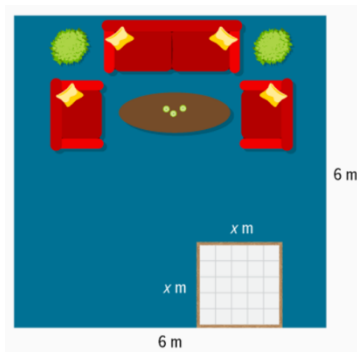
b) $81c^4 - d^8$

c) $x^4 - 10,000$

d) $z^8 - 1$

Example 3: Use Factors to Find Area

Rosita's family is buying carpet for their living room, which is 6 meters wide and 6 meters long. They plan to carpet the whole area except for a square near the door, which will be tiled. Find the factors representing the area of the living room that will be carpeted.



CHECK:

Factor each polynomial.

a) $25x^2 - 64y^2$

b) $196 - g^4$

c) $16x^8 - y^4$

Key Concept:

$$a^2 + 2ab + b^2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$a^2 - 2ab + b^2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Example 4: Identifying Perfect Square Trinomials

Determine whether the following are perfect square trinomials. If so, factor it.

a) $4j^2 + 8j + 16$

b) $100x^2 + 80x + 64$

c) $36h^2 - 12h + 1$

d) $y^2 - 22y + 121$

Identifying Perfect Square
Trinomials

- 1) Is the first term a perfect square?
- 2) Is the last term a perfect square?
- 3) Is the middle term 2 times the product of the root of both terms.