



Why Can't We Factor a Sum of Perfect Squares With Real Numbers?

Video Notes

[Video Link](#)

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What background knowledge will I need?

- How to factor a difference of perfect squares

Three conditions for a difference of perfect squares:

- the expression must be a **binomial**
- it must be a **difference - subtraction**
- both terms must be **perfect squares**

Try to factor:

$x^2 + 9$
↳ no x^1

$\sqrt{x^2} = x$
 $\sqrt{9} = 3$

~~$(x + 3)(x - 3)$~~

$+3x$
 $-3x$

NOT FACTORABLE!

The signs become a problem!

The outer and inner terms must have opposite signs, to be able to cancel out. The last terms in each binomial will also have opposite signs, always resulting in a negative, not a positive, term.

Try to factor:

$4x^2 + 25$
↳ no x^1

~~$(2x + 5)(2x - 5)$~~

$+10x$
 $-10x$
 -25

NOT FACTORABLE!