

Factoring Trinomials of the form $ax^2 + bxy + cy^2$

The method of decomposition can be applied to trinomials of the form $ax^2 + bxy + cy^2$.



Factor.

a) $2x^2 - 5xy + 2y^2$

b) $2n^2 - 3nm - 35m^2$

Complete Assignment Questions #3 - #8

Perfect Square Trinomials

A **perfect square trinomial** is formed from the product of two identical binomials. Perfect square trinomials can be factored by considering the pattern displayed when squaring binomials.

Complete the following : $(p + q)^2 = p^2 + 2pq + q^2$ $(p - q)^2 = p^2 - 2pq + q^2$

From the above we can see the following:

- The first term in the trinomial is the square of the first term in the binomial.
- The last term in the trinomial is the square of the last term in the binomial.
- The middle term in the trinomial is twice the product of the first and last terms in the binomial.



In a perfect square trinomial, e.g. $x^2 + 10x + 25$, the **first and last terms must be perfect squares** and the **middle term must be twice the product of the square roots of the first and last terms.**

$2(x)(5)$



Which of the following are perfect square trinomials?

a) $a^2 + 4a + 4$

b) $x^2 - 9x + 6$

c) $4x^2 - 36x + 81$

d) $y^2 + 8y - 16$

$2(a)(2)$

No

$2(2x)(-9)$

No

Yes

Yes



Fill in the blank so that each of the following is a perfect square trinomial.

a) $x^2 + 20x + 100$ b) $x^2 - 20x + 100$ c) $25x^2 + 60x + 36$ d) $9m^2 + 24m + 16$

Handwritten solutions for (a): $2(x)(10)$
 Handwritten solutions for (b): $2(x)(-10)$
 Handwritten solutions for (c): $2(5x)(6)$
 Handwritten solutions for (d): $2(3m)? = 24m$, $6m? = 24m$, $? = 4$ (with a circled 4^2)



Factor

a) $49x^2 - 14x + 1$ b) $16 + 40x + 25x^2$ c) $\frac{1}{9}a^2 - 2ab + 9b^2$

Handwritten solutions:
 a) $2(7x)(-1)$ → $(7x-1)^2$
 b) $2(4)(5x)$ → $(4+5x)^2$
 c) $2(\frac{1}{3}a)(-3b)$ → $(\frac{1}{3}a-3b)^2$

Complete Assignment Questions #9 - #16

Assignment Do # 8-14
Quiz: L3

1. a) Write a polynomial expression for the group of algebra tiles shown.



b) Arrange the algebra tiles into a rectangle and state the length and width of the rectangle.

c) Use the algebra tile diagram to express the polynomial in factored form.