

4.7 Multiplying & Factoring Perfect Square Trinomials

A. Multiplying a Squared Binomial (perfect square)



1. $(x+5)(x+5)$
 $= x^2 + 10x + 25$

	x	5
x	x^2	$5x$
5	$5x$	25

2. $(x-3)(x-3)$
 $= x^2 - 6x + 9$

	x	-3
x	x^2	$-3x$
-3	$-3x$	9

3. $(2x+1)(2x+1)$
 $= 4x^2 + 4x + 1$

	$2x$	1
$2x$	$4x^2$	$2x$
1	$2x$	1



4. $(2x+3)^2$

SKIP

5. $(4x-1)^2$
 $= (4x-1)(4x-1)$
 $= 16x^2 - 8x + 1$

	$4x$	-1
$4x$	$16x^2$	$-4x$
-1	$-4x$	1

6. $(3x+5)^2$

SKIP

7. $(2x-3y)^2$
 $= 4x^2 - 6xy - 6xy + 9y^2$
 $= 4x^2 - 12xy + 9y^2$

	$2x$	$-3y$
$2x$	$4x^2$	$-6xy$
$-3y$	$-6xy$	$9y^2$

8. $(2x+3y)^2$

SKIP



9. $(5x^2 - 2z^3)^2$

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10. $(x+4x^2y)^2$
 $= x^2 + 4x^3y + 4x^3y + 16x^4y^2$
 $= x^2 + 8x^3y + 16x^4y^2$

	x	$4x^2y$
x	x^2	$4x^3y$
$4x^2y$	$4x^3y$	$16x^4y^2$

B. Factoring a Perfect Square Trinomial

perfect square $\square^2 + 2\square\{\} + \{\}^2$ perfect square

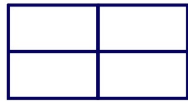
square root of first term square root of second term

Yes! It's perfect square $4x \uparrow x^2$ $2x$ 2

1. $x^2 - 4x + 4 = (x - 2)^2$

2. $x^2 + 14x + 49 = (x + 7)^2$

Look for patterns!!!



3. $4x^2 - 4x + 1 = (2x - 1)^2$

4. $25x^2 + 20x + 4 = (5x + 2)^2$



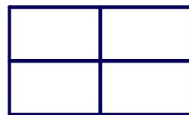
5. $9x^2 + 24x + 16$

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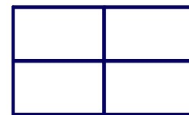
6. $4x^2 - 20x + 25 = (2x - 5)^2$



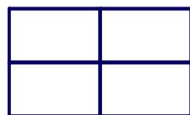
7. $9x^2 - 42xy + 49y^2 = (3x - 7y)^2$



8. $x^2y^2 + 6xyz + 9z^2 = (xy + 3z)^2$



9. $16x^4 - 8x^2y + y^2 = (4x^2 - y)^2$



10. $4a^6 + 12a^3b + 9b^2$

SKIP
