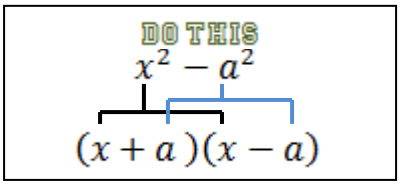
Factoring $x^2 - a^2$

How To: Look at the two parts of the problem. Ask yourself "What would I square to get the first term?" (x) and "What would I square to get the second term?" (a) Use your two answers to complete your solution →



Example #1: Factor $x^2 - 25$

Solution:
1. If I square x, I will get the x^2
2. If I square 5, I will get the 25
3. Solution: $(x + 5)(x - 5)$

Example #2: Factor $x^2 - 64$

Solution:
1. If I square x, I will get the x^2
2. If I square 8, I will get the 64
3. Solution: $(x + 8)(x - 8)$

Example #3: Factor $4x^2 - 9$

Solution:
1. If I square 2x, I will get the $4x^2$
2. If I square 3, I will get the 9
3. Solution: $(2x + 3)(2x - 3)$

Example #4: Factor $16x^2 - 100$

Solution:
1. If I square 4x, I will get the $16x^2$
2. If I square 10, I will get the 100
3. Solution: $(4x + 10)(4x - 10)$

Time to practice… Factor the following on your own:

1. $x^2 - 36$ Solution =
2. $9x^2 - 49$ Solution =
3. $x^2 - 81$ Solution =
4. $25x^2 - 4$ Solution =
5. $x^2 - 4$ Solution =
6. $64x^2 - 9$ Solution =
7. $x^2 - 16$ Solution =
8. $100x^2 - 25$ Solution =

Factoring $x^2 + bx + c$

ANSWER KEY

1. $(x + 6)(x - 6)$
2. $(3x + 7)(3x - 7)$
3. $(x + 9)(x - 9)$
4. $(5x + 2)(5x - 2)$
5. $(x + 2)(x - 2)$
6. $(8x + 3)(8x - 3)$
7. $(x + 4)(x - 4)$
8. $(10x + 5)(10x + 5)$