Factoring Difference of Squares

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2 terms (binomial) → bx missing
must be subtraction
both terms are perfect squares

$$ax^2 - c$$

Steps for factoring success
1. Take square root of 1st term (ax^2) & write first in each ( )
2. Take square root of last term (c) & write in back of each ( )
3. make 1 ( ) addition (+) & 1 subtraction (−)

Example: $81x^2 - 36$

$\sqrt{81x^2} = 9x$

$\sqrt{36} = 6$

$(9x+6)(9x-6)$

$3(3x+2)\,3(3x-2)$

Really you should take GCF out 1st! $9(3x+2)(3x-2)$

$81x^2 - 36$

$9(9x^2 - 4)$

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

$\sqrt{4} = 2$

$9(3x+2)(3x-2)$

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GCF 1st!

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

$\sqrt{x^2} = x$

$\sqrt{16} = 4$

2. $x^2 - 49$ $(x+7)(x-7)$

3. $4x^2 - 25$ $(2x+5)(2x-5)$

$\sqrt{4x^2} = 2x$

$\sqrt{25} = 5$

4. $36x^2 - 1$ $(6x+1)(6x-1)$

5. $\frac{75x^2}{3} - \frac{3}{3}$

$3(25x^2-1) = 3(5x-1)(5x+1)$

6. $\frac{125x^2}{5} - \frac{45}{5}$

$5(25x^2-9) = 5(5x-3)(5x+3)$

7. $\frac{100x^2}{4} - \frac{16}{4}$

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

8. $\frac{36x^2}{4} - \frac{400}{4}$

$4(9x^2-100) = 4(3x+10)(3x-10)$