Factoring - Difference of Squares

Feb 14

Review:

$(y + 2)(y - 2) =$ $y^2 - \cancel{2y} + \cancel{2y} - 4 = y^2 - 4$

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

$(t - 5)(t + 5) =$ $t^2 - 25$

If given, $x^2 - 36$

Look for: 1) A difference (a minus sign)

2) Two perfect squares (can $\sqrt{}$ cleanly)

Then $x^2 - 36 = (x + 6)(x - 6)$

ex. $x^2 - 25$

$(x+5)(x-5)$

ex. $\frac{x^2}{36} - \frac{16}{49}$

$\left(\frac{x}{6} + \frac{4}{7}\right)\left(\frac{x}{6} - \frac{4}{7}\right)$

ex. $x^2 - y^2$

$(x-y)(x+y)$

ex. $9a^2b^2 - c^2$

$(3ab+c)(3ab-c)$

ex. $4b^2 - 25$

$(2b+5)(2b-5)$

ex. $a^2 - \frac{1}{4}$

$\frac{\sqrt{1}}{\sqrt{4}}$

$\left(a + \frac{1}{2}\right)\left(a - \frac{1}{2}\right)$

Trickier

ex. $3x^6 - 75$

$3(x^6 - 25)$

$3(x^3+5)(x^3-5)$

ex. $4a^2 - 16$

$(2a-4)(2a+4)$

wrong → not fully factored

$4(a^2-4)$

$4(a-2)(a+2)$