Objective: Difference of two perfect squares

Review Examples: Multiply the following:

a) $(a+4)(a-4)$ **b)** $(3-k)(3+k)$ **c)** $(2m+7)(2m-7)$ **d)** $(x+6)(x+6)$

Factoring a Difference of Squares:
- A polynomial of the form $A^2 - B^2$ is called a ***difference of squares.***
- Differences of squares always factor as follows: $A^2 - B^2 = (A+B)(A-B)$

★ This only works if ***both terms are perfect squares*** <u>and</u> *you are subtracting.*

★ Don't forget to check for a GCF first!

Steps:

1. Factor out the GCF if there is one.
2. If there are two terms and both terms are perfect squares with a minus sign between them like this:
$A^2 - B^2$
3. Then factor into two parentheses putting the (square root of the first + the square root of the second) times the (square root of the first – the square root of the second) or $(A+B)(A-B)$

Examples: Factor the following polynomials.

a) $x^2 - 25$ b) $m^2 - 81$ c) $w^2 + 36$

d) $49 - n^2$ e) $4t^2 - 1$ f) $9z^2 - 16$

g) $64y^2 - 81x^2$ h) $144k^2 + 25$ i) $2a^2 - 242$

j) $3 - 75p^2$ k) $100q^4r^2 - 9$ l) $x^4 - 16$