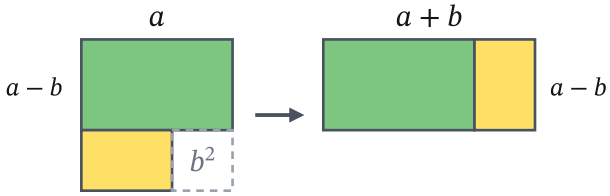
Name _____ Date _____

The Difference of Squares

Example



Cut the square b^2 out of the square a^2. Move what is left into a rectangle with sides $a+b$ and $a-b$:

$a^2 - b^2 = (a+b)(a-b)$

Remember

The difference of squares: $a^2 - b^2 = (a+b)(a-b)$. Read from left to right it is factorising, and from right to left multiplying. Careful: $a^2 + b^2$ does **not** factorise like this, and $a^2 - b^2$ is not $(a-b)^2$.

1 ON YOUR OWN Multiply out.

$(x+4)(x-4) =$ ☐ $(5-2y)(5+2y) =$ ☐

$(3a+b)(3a-b) =$ ☐ $(x^2+1)(x^2-1) =$ ☐

2 ON YOUR OWN Factorise.

$x^2 - 9 =$ ☐ $4a^2 - 25 =$ ☐

$1 - 16y^2 =$ ☐ $2x^2 - 18 =$ ☐

Names (pair) _____ Date _____

3 ON YOUR OWN **Mental maths.**

$21 \times 19 = (20 + 1)(20 - 1) =$ ☐

$102 \times 98 =$ ☐

$51^2 - 49^2 =$ ☐

4 IN PAIRS **Is it a difference of squares?** If it is, factorise it.

Expression	Difference of squares?	Factorised
$x^2 - 16$	yes / no	☐
$x^2 + 16$	yes / no	☐
$9 - a^2$	yes / no	☐
$4x^2 - y^2$	yes / no	☐

5 ON YOUR OWN **All the way.** Factorise $x^4 - 1$. Hint: $x^4 = (x^2)^2$.

$x^4 - 1 =$ ☐

6 ON YOUR OWN **Without a calculator.** Work out $75^2 - 25^2$ using the difference of squares.

$75^2 - 25^2 =$ ☐

★ ON YOUR OWN **Exit card.** Factorise: $9x^2 - 1 =$ ☐