Factoring

2nd

Difference of Two Squares

Name: Hirsch

Period: _____ **Date:** _____

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

Things to look for:

- Are both terms perfect squares?
- Is it a subtraction problem?

Ex 1. $x^2 - 9$

$(x+3)(x-3)$

Ex 2. $x^2 - 49$

$(x+7)(x-7)$

Ex 3. $4x^2 - 25$

$(2x+5)(2x-5)$

Ex 4. $\frac{5x^2}{5} - \frac{20}{5}$

$5(x^2-4)$

$5(x+2)(x-2)$

Ex 5. $x^{16} - 25$

$(x^8+5)(x^8-5)$

Ex 6. $x^8 - 100$

$(x^4+10)(x^4-10)$

You Try:

1. $x^2 - 121$

$(x+11)(x-11)$

2. $x^2 - 64$

$(x+8)(x-8)$

3. $9x^2 - 1$

$(3x+1)(3x-1)$

4. $\frac{2x^2}{2} - \frac{32}{2}$

$2(x^2-16)$

$2(x+4)(x-4)$

5. $x^9 - 36$

cannot factor

6. $x^{20} - 49$

$(x^{10}+7)(x^{10}-7)$

Factoring Practice
Difference of Two Squares

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Factor using the difference of two squares. If not possible, explain why.

1. $a^2 - 1$

$(a+1)(a-1)$

2. $\frac{3a^2}{3} - \frac{12}{3}$

$3(a^2-4)$
$3(a+2)(a-2)$

3. $\frac{16c^2}{4} + \frac{4}{4}$

$4(4c^2+1)$

4. $c^2 - 4$

$(c+2)(c-2)$

5. $k^2 - 19$

cannot factor

6. $t^4 - 1$

$(t^2+1)(t^2-1)$

7. $36j^2 - 121$

$(6j+11)(6j-11)$

8. $\frac{9x^8}{9} - \frac{81}{9}$

$9(x^8-9)$
$9(x^4+3)(x^4-3)$

9. $y^{10} - 4$

$(y^5+2)(y^5-2)$

10. $w^2 - 36$

$(w+6)(w-6)$

11. $x^3 - 16$

cannot factor

12. $q^{12} + y^6$

cannot factor

13. $c^2 - 8$

Cannot factor

14. $64 - c^8$

$(8+c^4)(8-c^4)$