

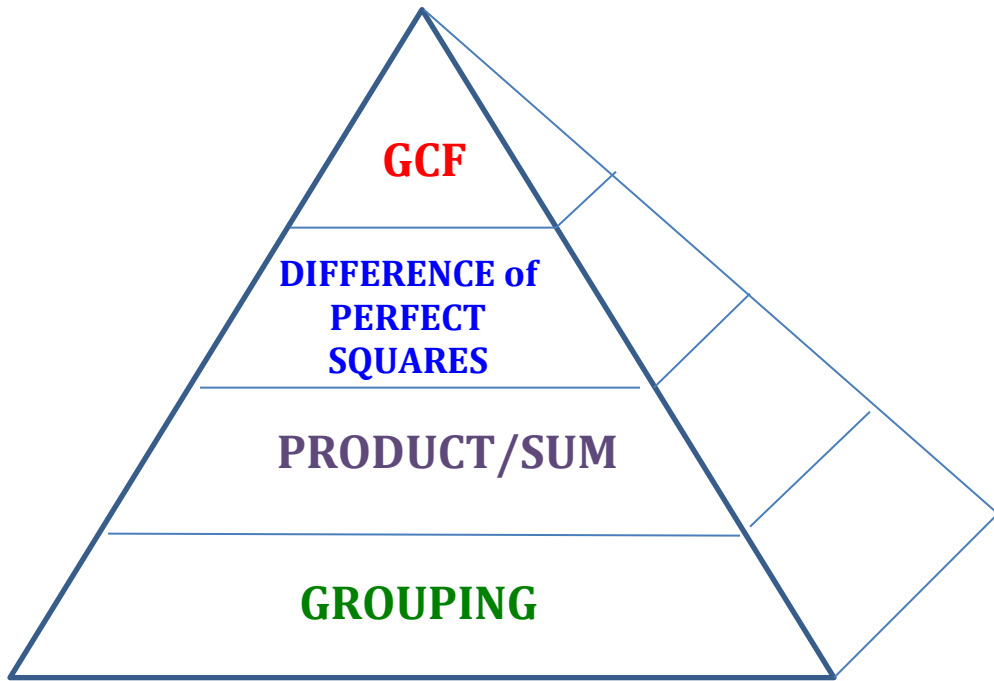
Name _____
Geometry Summer Assignment

Due: September 6, 2019
Period _____

In Common Core Geometry, it is important to remember how to factor, solve quadratic equations, and simplify radicals.

After you read the summary on pages 1 - 2, please answer the eight questions that begin on page 3 in the space provided. Show all work.

THE FACTORING PYRAMID



➤ **FACTORING**

Examples and Solutions:

Factor Completely: $2x^2 - 50$
 $2(x^2 - 25)$ GCF: 2
 $2(x + 5)(x - 5)$ Difference of Perfect Squares

Factor Completely: $2a^2 - 10a - 28$
 $2(a^2 - 5a - 14)$ GCF: 2
 $2(a - 7)(a + 2)$ Product/Sum Product: -14 $(-7)(+2) = -14$
Sum: -5 $-7 + (+2) = -5$

➤ **Solving Quadratic Equations by Factoring**

1. The equation should be set equal to zero.
2. Factor the polynomial
3. Set each factor equal to zero and solve

Examples and Solutions:

Find the solution set of the equation $x^2 - 6x = 0$.

$x(x - 6) = 0$ **GCF: x**

$x = 0$ or $x - 6 = 0$ **Set each factor equal to zero**

$x = 0$ or $x = 6$ **Solve each equation**

Find the solution set for the equation $x^2 - 5x = 6$.

$x^2 - 5x - 6 = 0$ **Subtract 6 from both sides to set equation equal to zero**

$(x - 6)(x + 1) = 0$ **Factor: Product/Sum**

$x - 6 = 0$ or $x + 1 = 0$ **Set each factor equal to zero**

$x = 6$ or $x = -1$ **Solve each equation**

Solve: $(x - 3)(x + 3) = 6x - 14$

$x^2 - 9 = 6x - 14$ **FOIL out $(x - 3)(x + 3)$**

$x^2 - 9 - 6x + 14 = 0$ **Set equation equal to zero.**

$x^2 - 6x + 5 = 0$ **Combine Like Terms.**

$(x - 5)(x - 1) = 0$ **Factor: Product/Sum**

$x - 5 = 0$ or $x - 1 = 0$ **Set each factor equal to zero**

$x = 5$ or $x = 1$ **Solve each equation**

➤ **Simplifying Radicals**

- Express $7\sqrt{90}$ in simplest radical form.

$7\sqrt{9 \cdot 10}$

$7 \cdot \sqrt{9} \cdot \sqrt{10}$

$7 \cdot 3\sqrt{10}$

$21\sqrt{10}$

- Express $\sqrt{128}$ in simplest radical form.

$\sqrt{64 \cdot 2}$

$\sqrt{64} \cdot \sqrt{2}$

$8\sqrt{2}$

EXAMPLES

❖ **FACTORING**

1 Factor: $ab^2 - ab$

2 Factor: $x^2 - 10x + 21$

3 Factor: $a^2 - a - 2$

❖ **SOLVE EACH QUADRATIC EQUATION BY FACTORING:**

4 Find the solution set of the equation $x^2 - 5x = 0$.

5 Solve the equation $x^2 - 2x - 15 = 0$.

6 Find the solutions of $x^2 = 16x - 28$.

❖ **SIMPLIFYING RADICALS**

7. When $\sqrt{72}$ is expressed in simplest $a\sqrt{b}$ form, what is the value of a ?

8. Theo determined that the correct length of the hypotenuse of the right triangle in the accompanying diagram is $\sqrt{20}$. Fiona found the length of the hypotenuse to be $2\sqrt{5}$. Is Fiona's answer also correct? *Justify your answer.*

