ALGEBRA I NAME _____

4.5 Notes - Solving Exponential Equations DATE _____ PERIOD _____

Consider the equation: $3^x = 3^6$. What value of x makes this statement true?

This is called the **Exponential Property:**

If $b^x = b^y$, then $x = y$.

Try these!
Solve for x using the **Exponential Property**.

1. $2^{x-4} = 2^8$

2. $6^{3x} = 6^9$

3. $5^{11} = 5^{2x+1}$

4. $10^{3x-1} = 10^{2x+5}$

Consider the equation: $3^x = 9$

How is this equation different from the first?

Examples:
Solve each exponential equation by re-expressing the base using the **Table of Perfect Powers**.

5. $10^{2x} = 10{,}000$

6. $6^{x+3} = 36$

7. $81 = 3^{5x-1}$

8. $4^{2x+5} - 3 = 61$