Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_

Class/Home worksheet: Alg2H

Factoring : Perfect cubes + Grouping + Solving Equations

(page 224 and beyond)

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| Perfect Cubes (P. 224)$$A^{3}+B^{3}= \left(A+B\right)⋅\left(A^{2}-AB+B^{2}\right)$$$$A^{3}-B^{3}= \left(A-B\right)⋅(A^{2}+AB+B^{2})$$SOAP : Same , Opposite , Always-Positive (Adin rule) |
| Factor:$$x^{3}+125=$$ | Factor:$$x^{3}-27y^{3}=$$ |
| Factor:$$-8x^{3}+27y^{3}=$$ | Factor:$$12x^{2}y^{3}-27x^{2}y=$$ |

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| Factor by grouping : When you have polynomial with 4 or more terms. |
| Factor:$$x^{2}+3x+2x+6=$$ | Factor:$$x^{2}y+5xy+4x+20=$$ |
| Factor:(hint: Reorder)$$5y^{2}+2y+10y+4=$$ | Factor (page 223, prob 55):$$xy+xz+wy+wz=$$ |

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| Factor |
| Factor (page 223, prob 68):(hint: Don't stop)$$a^{16}-1=$$ | Factor (page 223, prob 56):$$b^{3}-b^{2}+2b-2=$$ |
| Factor (page 223, prob 48):(Challenging)$$a^{2}+2ab+b^{2}-9=$$ | Factor (page 223, prob 74):(Challenging)$$-225x+x^{3}=$$ |

**Solving by factoring (principle of zero product)**

**Question 1**

what is x?

$$x^{2}-3x-28=0$$

Answer:

**Question 2**

The square of a number equals one less than twice the number. find the number.

Answer:

**Question 3** (Question 1, page 234)

A house has a square living room. In remodeling, one wall is moved 3 meters to extend the room into a rectangular shape, with a resulting area of 180 $m^{2}$.

What are the dimensions of the square room?

Answer: