Name:_____   Date:_____

Class/Home worksheet: Alg2H
Factoring :   Perfect cubes + Grouping + Solving Equations
(page 224 and beyond)

Perfect Cubes (P. 224)

$$A^3 + B^3 = (A + B) \cdot (A^2 - AB + B^2)$$

$$A^3 - B^3 = (A - B) \cdot (A^2 + AB + B^2)$$

SOAP :   Same , Opposite , Always-Positive   (Adin rule)

Factor:	Factor:
$x^3 + 125 =$	$x^3 - 27y^3 =$
Factor:	Factor:
$-8x^3 + 27y^3 =$	$12x^2y^3 - 27x^2y =$

Problems denoted with ** mark are taken from Exeter Phillips Academy (NH) math curriculum.

Factor by grouping :   When you have polynomial with 4 or more terms.

Factor: $$x^2 + 3x + 2x + 6 =$$	Factor: $$x^2y + 5xy + 4x + 20 =$$
Factor: (hint: Reorder) $$5y^2 + 2y + 10y + 4 =$$	Factor (page 223, prob 55): $$xy + xz + wy + wz =$$

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   <mark>(principle of zero product)</mark>

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: