Section 6.5: A GENERAL FACTORING STRATEGY

When you are done with your homework you should be able to…

- Recognize the appropriate method for factoring a polynomial
- Use a general strategy for factoring polynomials

WARM-UP:

Multiply:

a. $(x+1)(x^2-x+1)$

b. $(2x-3y)(4x^2+6xy+9y^2)$

A STRATEGY FOR FACTORING A POLYNOMIAL

1. If there is a _____ factor other than _____, factor the _____.
2. Determine the _____ of _____ in the polynomial and try factoring as follows:
   a. If there are _____ terms, can the _____ be factored by one of the following special forms?

      _____ of _____ _____:

_____ of _____ _____:

_____ of _____ _____:

b. If there are _____ terms, is the _____ a

_____ _____ _____? If so,

factor by one of the following special forms:

_____ = _____

_____ = _____

If the trinomial is _____ a _____

_____, try _____ by _____ and

_____ or _____.

c. If there are _____ or _____ terms, try

_____ by _____.

3. Check to see if any _____ with more than one term in the

_____ _____ can be factored

_____. If so, _____ completely.

4. _____ by _____.

Example 1: Factor

a. $5x^4 - 45x^2$

b. $4x^2 - 16x - 48$

c. $4x^5 - 64x$

d. $x^3 - 4x^2 - 9x + 36$

e. $3x^3 - 30x^2 + 75x$

f. $2w^5 + 54w^2$

g. $3x^4 y - 48y^5$

h. $12x^3 + 36x^2 y + 27xy^2$

i. $12x^2(x-1)-4x(x-1)-5(x-1)$

j. $x^2+14x+49-16a^2$

APPLICATION

Express the area of the shaded ring shown in the figure in terms of π. Then factor this expression completely.