Name_____**KEY**_____

1. Choose a factoring strategy.

   a. $x^2 + 2xy + y^2$

   Perfect square trinomial     $(x+y)^2$

   b. $x^2 + 3x - 4$

   general trinomial
   either trial & error or grouping     $(x+4)(x-1)$

   c. $2x^2 - 98$

   GCF     $2(x^2-49)$   $= 2(x-7)(x+7)$

   diff of squares

   d. $3y - 21 + xy - 7x$

   grouping     $3(y-7) + x(y-7)$
   $(y-7)(3+x)$

   e. $20 - 3x - 2x^2$   $= -2x^2 - 3x + 20$   $= -(2x^2 + 3x - 20)$

   GCF $(-1)$     $-(2x-5)(x+4)$

   trinomial

   trial & error or grouping

   f. $18x^3 - 63x^2 + 9x$

   GCF $(9x)$     $9x(2x^2 - 7x + 1)$

   g. $3x^2 - 75$

   GCF $(3)$     $3(x^2 - 25)$

   diff of squares   $3(x-5)(x+5)$

   h. $x^2 + x + xy + y$

   grouping     $x(x+1) + y(x+1)$
   $(x+1)(x+y)$

i. $16a^2 - 56ab + 49b^2$

$(4a - 7)^2$   perfect square trinomial

j. $125 - 8y^3$

diff of cubes   $(5 - 2y)(25 + 10y + 4y^2)$

k. $x^2 + 11x + 24$

general trinomial

$(x + 8)(x + 3)$

l. $12x^2 + 34x + 24$

GCF (2)   $2(6x^2 + 17x + 12)$

trinomial   $2(2x + 3)(3x + 4)$

trial & error or grouping

m. $64x^3 + 27$

Sum of cubes   $(4x + 3)(16x^2 - 12x + 9)$

n. $x^2y - y^3$

GCF (y)   $y(x^2 - y^2)$

diff of squares   $y(x - y)(x + y)$

o. $3x^4y + 6x^3y - 72x^2y$

GCF $(3x^2y)$   $3x^2y(x^2 + 2x - 24)$

trinomial   $3x^2y(x + 6)(x - 4)$

p. $4 - x^2$

diff of squares   $(2 - x)(2 + x)$

q. $4x^2 - 8xy - 3x + 6y$

grouping

$4x(x-2y) - 3(x-2y)$

$(x-2y)(4x-3)$

r. $14t^2 - 9t + 1$

trinomial

trial & error or grouping

$(7t-1)(2t-1)$

s. $x^4 - 14x^2 - 32$

trinomial

$(x^2+2)(x^2-16)$

trial & error or grouping

diff of squares $(x^2+2)(x-4)(x+4)$

t. $2z^3 - 18z$

GCF $(2z)$

diff of squares

$2z(z^2-9)$

$2z(z-3)(z+3)$

u. $2xy - 72x^3y$

GCF $(2xy)$

diff of squares

$2xy(1-36x^2)$

$2xy(1-6x)(1+6x)$

v. $216y^3 - z^3$

diff of cubes $(6y-z)(36y^2+6yz+z^2)$

w. $x^3 - 28 + 7x^2 - 4x$

$x^3 + 7x^2 - 4x - 28$

grouping

$x^2(x+7) - 4(x+7)$

diff of squares $(x+7)(x^2-4) = (x+7)(x-2)(x+2)$

2. Follow your strategy and factor each of the problems in #1 completely.