FRIDAY:

① Extra Credit:
- 3 pts on exam1
- compute/estimate Volume of Superior Dome.
- due before exam 1.

② Factoring ←

Ex. $5a + 10ax - 5ay - 20az = 5a(1 + 2x - y - 4z)$

think: $x^2 - y^2 = (x-y)(x+y)$

Ex $(a-b)^2 - 1 = (a-b-1)(a-b+1)$

$= (a-b)^2 - 1^2$

Ex $a(x+2)^2 - ax^2 = a((x+2)^2 - x^2)$

$= a((x+2) - x)(x+2+x)$

$= a(x+2-x)(2x+2)$

$= a \cdot 2(2x+2) = 2a(2x+2)$

$= 4a(x+1)$

or

$a(x^2 + 4x + 4) - ax^2$

$ax^2 + 4ax + 4a - ax^2$

$4ax + 4a = 4a(x+1)$

Factoring By Grouping: (use this when factoring 4 terms)

$(3x - 3y) + (bx - by)$

$3[x - y] + b[x - y]$

$[x - y](3 + b)$

you try:

- $am + an + cn + cm$

$a(m+n) + c(m+n)$

$(m+n)[a + c]$ ✓

- $x^2 - y^2 + x - y$

$(x-y)(x+y) + (x-y)\cdot 1$

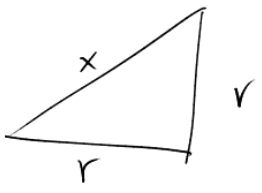
$(x-y)((x+y) + 1)$

$(x-y)(x+y+1)$

#69, p. 183

As large as possible square is cut fro a circular metal plate of radius r.

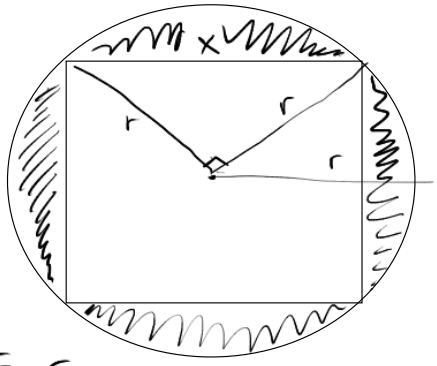
Express in factored form the area of the metal pieces that are left.



$x^2 = r^2 + r^2$

$x^2 = 2r^2$

$x = \sqrt{2r^2} = \sqrt{2} \cdot r$



Area

Circle: πr^2

Square: $x^2 = (\sqrt{2}\, r)^2 = 2r^2$

Area of black: $\pi r^2 - 2r^2 = \boxed{r^2(\pi - 2)}$

$n(-3) = \underbrace{m(-3)}_{\text{graph height}} + 2$

$= -3 + 2 = -1$

Def. $k(t) = m(t + 1.5)$

$k(2.5) = m(2.5 + 1.5)$

$= m(4) = -1$

Def. $w(t) = m(t - 0.5)$

$w(-0.5) = m(-0.5 - 0.5)$

$= m(-1) = -2$

1