Review questions (similar to the Practice Test):

Example 1: Does the correspondence on a sports team between a player's name and the number on their jersey represent a function?

f: name $\longrightarrow$ #

Yes

g: # $\longrightarrow$ name.

Yes

Example 2: Multiply $(x^3+yz)(x^3-yz)$

$= x^6 - x^3yz + x^3yz - y^2z^2$

$= x^6 - y^2z^2$

Example 3: If $f(x)=x^2+5$, find

a.) $f(t-1)$

b.) $f(a+h)-f(a)$

c.) $f(a)-f(a-h)$

(a) $f(t-1) = (t-1)^2+5$

(b) $f(a+h)-f(a) = (a+h)^2+5-(a^2+5)$

$= a^2+2ah+h^2+5-a^2-5$

$= 2ah+h^2$

(c) $f(a)-f(a-h)$

$= (a^2+5)-((a-h)^2+5)$

$= a^2+5-(a^2-2ah+h^2+5)$

$= a^2+5-a^2+2ah-h^2-5$

$= 2ah-h^2$

Example 4: Factor $5a^2-10ab+5b^2$

$= 5(a^2-2ab+b^2)$

$= 5(a-b)^2$

Example 5: Factor $8x^2-8y^2$

$= 8(x^2-y^2)$

$= 8(x+y)(x-y)$

Example 6: Factor $(m^2-2mn+n^2)-25$

$= (m-n)^2-25$

$= ((m-n)+5)((m-n)-5)$

$= (m-n+5)(m-n-5)$

Example 7: Solve $x^2-3x-7=0$

use calc $\rightarrow$ zero

$x = -1.5414$

$x = 4.5414$

Example 8: Factor $ab^3 + 125a$

$= a(b^3 + 125)$

$= a(b+5)(b^2 - 5b + 25)$

Example 9: Factor $27x^3 - 8$

$= (3x-2)(9x^2 + 6x + 4)$

Example 10: Factor $a^2 - 2ab + b^2 - 4t^2$

$= (a^2 - 2ab + b^2) - 4t^2$

$= (a-b)^2 - 4t^2$

$= (a - b + 2t)(a - b - 2t)$