

# BONUS ASSIGNMENT 201-914-DW

## FUNCTIONS

$$f(x) = x^2 + x - 1$$

$$g(x) = x - 7$$

$$h(x) = x^3 + x + 2$$

COMPUTE

$$(f \circ h \circ g)(-2x)$$

$$= (f \circ h)(-2x - 7)$$

$$= f(h(-2x - 7))$$

$$= f((-2x - 7)^3 + (-2x - 7) + 2)$$

$$= f((4x^2 + 28x + 49)(-2x - 7) - 2x - 5)$$

$$= f(-8x^3 - 84x^2 - 294x - 343 - 2x - 5)$$

$$= f(-8x^3 - 84x^2 - 296x - 348)$$

$$= (-8x^3 - 84x^2 - 296x - 348)^2 + (-8x^3 - 84x^2 - 296x - 348) - 1$$

$$= (64x^6 + 672x^5 + 2368x^4 + 2784x^3$$

$$+ 672x^5 + 7056x^4 + 24864x^3 + 29232x^2$$

$$+ 2368x^4 + 24864x^3 + 87616x^2 + 103008x$$

$$+ 2784x^3 + 29232x^2 + 103008x + 121104) - 8x^3 - 84x^2 - 296x - 349$$

WHAT A PAIN!!!

$$= \boxed{64x^6 + 1344x^5 + 11792x^4 + 55288x^3 + 145996x^2 + 205720x + 120755}$$