Today:

1) Check HW/Collect

2) Complex Composition Practice

3) Factoring Review

4) Worktime

HW Q's

# Function Composition of a function

$g(w) = w^2 + 2$

$f(w) = 2w + 4$

Find f(g(3w+1))

$g(3w+1) = (3w+1)^2 + 2$

$= (3w+1)(3w+1) + 2$

$= 9w^2 + 3w + 3w + 1 + 2$

$g(3w+1) = 9w^2 + 6w + 3$

$f(w) = 2w + 4$ $f(g(3w+1))$

$f(9w^2 + 6w + 3)$

$= 2(9w^2 + 6w + 3) + 4$

$18w^2 + 12w + 6 + 4$

$18w^2 + 12w + 10$

# 0.2b Complex Composition:

# Practice in Groups around the room

> You work forty hours a week at a high end furniture store. You receive a $220 weekly salary, plus a 3% commission on sales over $5000. Assume that you sell enough this week to get the commission. Given the functions $f(x) = 0.03x$ and $g(x) = x - 5000$, which of $(f \circ g)(x)$ and $(g \circ f)(x)$ represents your commission?

$f(g(x))$

$g(x) = x - 5000$

$f(g(x)) = 0.03(x - 5000)$

$0.03(6{,}000 - 5{,}000)$

$0.03(1{,}000)$

30

$g(f(x)) = f(x) = 0.03x$

$g(0.03x) = 0.03x - 5000$

$0.03(6{,}000) - 5{,}000$

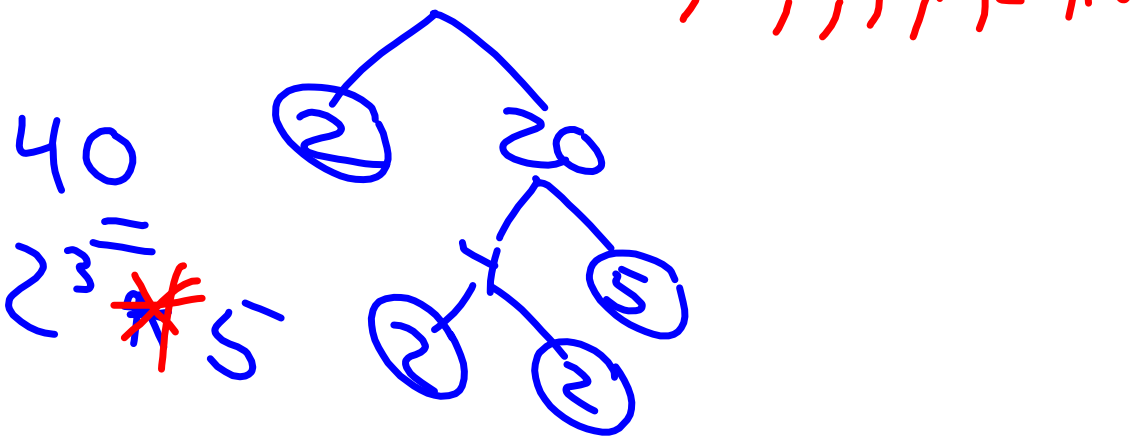
$x = \$6{,}000$

4,820

Wrong

# 0.3 Factoring and GCFs

Factor: 40



Factor:

$x^6 + 3x^2$

Find GCF!

Greatest Common Factor

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

GCF

Find GCF

Factor:

$-6y^4 + 9y^3 + 12y$

$3y(-2y^3+3y^2+4)$

GCF

Factor: By Grouping

$4n^3 + 3n^2 + 8n + 6$

$n^2(4n+3) + 2(4n+3)$

$(n^2+2)(4n+3)$

By Grouping

Factor: $x^3 + 3x^2 + 4x + 12$

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

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

Factor: $42x^2y + 18x^2 - 36x^3 + 21xy$

Factor: $10x^3 + 6x^2 + 5x + 3$

Website Tour!

Worktime!

Heads up! Quest next Friday 9/15