

BE- Alg 2 WEDNESDAY 11-18-09

① $f(x) = x^2 + 3x - 5$

Find: $f(a+b)$

$$f(x) = x^2 + 3x - 5$$

$$f(\quad) = (\quad)^2 + 3(\quad) - 5$$

$$f(a+b) = (a+b)^2 + 3(a+b) - 5$$

$$\boxed{f(a+b) = a^2 + 2ab + b^2 + 3a + 3b - 5}$$

Always ① rewrite the function

② open () for whatever "independent variable" you are evaluating the function at... $f(\text{anything})$

Ch. 7-7 Operations on Functions

Adding and Subtracting Functions

EXT
Pg 303

$$f(x) = x^2 - 3x + 1 \quad g(x) = 4x + 5$$

Ⓐ $f(x) + g(x) = ?$

or $(f+g)(x) = ?$ Another way to write $f(x) + g(x)$

$$f(x) + g(x) = (x^2 - 3x + 1) + (4x + 5)$$

$$x^2 - 3x + 1 + 4x + 5$$

$$\boxed{x^2 + x + 6}$$

Ⓑ $f(x) - g(x) = ?$

or $(f-g)(x) = ?$

$$f(x) - g(x) = (x^2 - 3x + 1) - (4x + 5)$$

$$x^2 - 3x + 1 - 4x - 5$$

$$\boxed{x^2 - 7x - 4}$$

Ex 2
pg 384 ① $f(x) = x^2 + 5x - 1$ $g(x) = 3x - 2$

$$f(x) \cdot g(x) = ?$$

$$(f \cdot g)(x) = ?$$

$$(x^2 + 5x - 1)(3x - 2)$$

$$3x^3 + 15x^2 - 3x$$

$$- 2x^2 - 10x + 3$$

$$3x^3 + 13x^2 - 13x + 3$$

② $\frac{f(x)}{g(x)} = ?$ or $\left(\frac{f}{g}\right)(x) = ?$

$$\frac{x^2 + 5x - 1}{3x - 2}$$

$$x \neq \frac{2}{3} \text{ Why}$$

$\div$ by 0 is NOT DEFINED

EX 4
Pg 385

$$f(x) = x + 3 \quad g(x) = x^2 + x - 1$$

$$f(g(x)) = ?$$

$$(f \circ g)(x) = ?$$

"o" means THE
"composition"
f of g of x

$$f(x) = x + 3$$

$$f(?) = (?) + 3$$

$$f(x^2 + x - 1) = (x^2 + x - 1) + 3$$

$$= x^2 + x - 1 + 3$$

$$= \boxed{x^2 + x + 2}$$

$$g(f(x)) = ? \quad \text{or} \quad (g \circ f)(x) = ?$$

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

$$g(x+3) = (x+3)^2 + (x+3) - 1$$

$$= x^2 + \underline{6x} + \underline{9} + \underline{x} + \underline{3} - 1$$

$$= \boxed{x^2 + 7x + 11}$$

Homework: Pg. 387 #19, 31.