

**FAR
BEYOND**

MAT122

Difference Quotient



Stony Brook University

Evaluating a Function - Review

Do: evaluate the following given $f(x) = 2x^2 - 5x + 1$

$$f(2)$$

$$f(3 - x)$$

$$f(x + h)$$

Difference Quotient

ex. find difference quotient of
 $f(x) = 2x^2 - 5x + 1$

$$\frac{f(x+h) - f(x)}{h} \quad \text{given } f(x)$$

from previous slide

get $f(x+h)$

Goal for difference quotient:
Simplify enough to cancel h in denominator

Difference Quotient - Do

Do: find difference quotient of $f(x) = -7x^2 - 4x + 2$

$$\frac{f(x+h) - f(x)}{h}$$

$$= -14x - 7h - 4$$