

READING ASSIGNMENT 02
§5.4, §5.5 (Fundamental Theorem of Calculus)

NAME: _____
Due 27 June 2018

LEARNING OBJECTIVES

By the end of this lesson, you will be able to:

- apply part 1 of the Fundamental Theorem of Calculus to calculate simple definite integrals,
- apply part 2 of the Fundamental Theorem of Calculus to find derivatives of functions defined as integrals.

REVIEW

- Review the chain rule from section 3.7 in the textbook.

READING

- Read section 5.4, but skip the proof starting below the “Theorem 1” box on page 254 through the “Conceptual Insight” box on page 255.
- Read section 5.5, but skip the proof starting below the “Theorem 1” box on page 259 through the sentence after equation (2) midway through page 260.

QUESTIONS

- (1) Assume that $h(x) = f(g(x))$, where both f and g are differentiable functions. If $g(-1) = 2$, $g'(-1) = 3$, $f(2) = -1$ and $f'(2) = 4$, what is the value of $h'(-1)$?

(2) Answer the following questions clearly, so your classmates could understand.

(a) In your own words, what does the Fundamental Theorem of Calculus say about the relationship between indefinite integrals and definite integrals?

(b) Does every continuous function have an antiderivative?