Calculus 221, Chapter 8 Summary ~ things you should know

from Chapters 1-6

slope of a curve at a point = slope of line tangent to the curve at that point = (instantaneous) rate of change of the curve at that point = first derivative evaluated at that point (notations: $f'(x)$, y', $\frac{d}{dx}[f(x)]$ and $\frac{dy}{dx}$)

power rule, general power rule, constant-multiple rule, sum rule

product rule, quotient rule, chain rule

the natural exponential function, $y = e^x$, and the natural logarithm function, $y = \ln x$, with derivatives

integration via antiderivative, evaluating definite integrals

from Chapter 8:

Important concepts:

angles measured in radians

sine , cosine and tangent functions and their derivatives

integrals of sin *t*, cos *t* and $\sec^2 t$

Be able to:

identify and construct angles measured in radians

find the value of sin *t*, cos *t*, tan *t* and sec *t* in a triangle or from coordinates of a point

find the derivative of various functions involving sine, cosine and tangent

find the integral of various functions involving sine, cosine and $(\text{secant})^2$

Review exercises from the text:

Chapter 8 Review of Fundamental Concepts, 1 – 10

Chapter 8 Supplementary Exercises, 1 – 43, 49, 52 – 80 (answers to odd-numbered problems are in the back)