# REVIEW 8 – Integration Techniques

## Summary of Topics for Sections 8.1 to 8.2, 8.7 and 8.8:

Mixed types of integration problems
- ❖Integration by Parts
- ❖L'Hopital's Rule

Improper integrals

## Suggested Review Problems from the Textbook

pg. 591-592 Review Exercises: 1, 6, 7, 9, 11, 14, 15, 35, 39, 51, 53, 67, 75, 79, 83, 85, 89, 92

## Additional Suggested Review Problems

1. Given the function $f(x)=\begin{cases} x-4 & 0\le x<4 \\ \dfrac{1}{x^2-16} & 4<x<\infty \end{cases}$. Evaluate $\int_0^8 f(x)dx$.

2. Find the average value of the function $f(x)=\dfrac{1}{x^3}$ on the interval $[-2,2]$.

# Answers

## Suggested Review Problems from the Textbook

**Pg. 591-592 Review Exercises**

6. $\dfrac{6}{5}$

14. $x\bullet\arctan(2x)-\dfrac{1}{4}\ln(4x^2+1)$

92. $\dfrac{\pi}{4}$

## Additional Suggested Review Problems

1. No value

2. No value. Integral must be reexpressed as $\int_{-2}^{0}\frac{1}{x^3}dx+\int_{0}^{2}\frac{1}{x^3}dx$. Both integrals are infinite.