MATH 150 HW: CHAPTERS 1 and 2
SPRING 2009

Write your name and class and clearly separate sections! See the syllabus.
Show work where appropriate, and use "good form and procedure," as in class!
This is due when you take the Quiz on Chapters 1 and 2.
Graded out of 15 points.
"*" denotes "See Hint below."
Read some of the book's Examples for additional assistance.

Be prepared to write sets of numbers in set-builder, interval, and/or graphical form.
Skim the back endpapers for key facts from algebra and trig.

Section 1.1 in Swokowski: (No homework)

1.2:   1, 3, 7, 9, 11, 31a, 35 (don't answer domain questions), 43-49 odd, 53, 55

> **See** the Illustration on pp.16-17 in Swokowski. For more background,
> see Section 1.6 in my online Math 141 (Precalculus) notes.

> **See** the Figures on p.19 in Swokowski.

1.3:   1a, 3a, 21-31 odd, 39, 41, 45*, 46*, 47*, 55

Hint on 45: Don't just multiply out the left side!
Hint on 45, 46, 47: Refer to Sections 5.1 and 5.2 in my Math 141 notes.

Know:

> • The Fundamental Trig IDs and the Advanced Trig IDs from the
> notes, **except** the Product-to-Sum IDs and the Sum-to-Product IDs.

> • The domains, ranges, and graphs of the six basic trig functions.

> • How to simplify trig expressions, verify trig IDs, and solve trig
> equations; refer to the problems from Section 1.3 in Swokowski.

<u>WARNING:</u> The Chapter 1 component of your first exam may look very different
from the Chapter 1 component of last year's exam!

THERE'S MORE....

2.1: 1-41 odd, 45, 47, 50, 51*, 58

> **Hint on #25:** Read Ex. 6 on p.47.
> **Note on #51:** What number appears to be the limit? What famous
> number is close to 2.72?
> **Read:** Exs. 3 and 4 on pp.45-46.

2.2: 1, 3, 5, 13-23 odd, 39, 42

> **Look at:** #41.
> **Memorize** one of the two forms (2.4) and (2.5) of the $\varepsilon - \delta$ definition
> of limit on p.53.

2.3: 1-15 odd, 21-37 odd, 41-51 odd, 62-65 all, 67, 69, 70*

> **Hint on #70:** Read Ex. 10 on p.66.

2.4: 1-23 odd, 27-41 odd,

Prove that $\lim\limits_{x \to \infty} \dfrac{\cos^4 x}{x^3} = 0$ using the Squeeze (or "Sandwich") Theorem.

> **Read** pp.70-71 on superconductors and pp.75-76 on gravitation.
> **Memorize** Definition (2.16) on $\lim\limits_{x \to \infty} f(x) = L$ on p.71.
>> A similar definition arises in the theory of sequences in
>> Math 151.
> **Memorize** Definition (2.17) on $\lim\limits_{x \to -\infty} f(x) = L$ on p.72.
> **Look at** Definition (2.19) on $\lim\limits_{x \to a} f(x) = \infty$ on p.76, though you
> don't have to memorize this.

2.5: 1-15 odd, 23, 25, 27, 31, 33, 39-47 odd*, 51, 53, 59, 60, 61

> **Domain** for 39 in interval form: $\left(-\infty, -1\right) \cup \left(-1, \dfrac{3}{2}\right] \cup \left(\dfrac{3}{2}, \infty\right)$.
>
> **Domain** for 45 in interval form: $\left(-\infty, -9\right) \cup \left(-9, \infty\right)$.
>
> **Domain** for 47 in interval form: $\left(-\infty, 0\right) \cup \left(0, 1\right) \cup \left(1, \infty\right)$.
>
> **Look at** 62.