Homework VII                                    Due Thursday, February 18, 2010 in section

Read pages 143 through page 185. I suggest that you look at, but do not hand in, the following problems of the text: page 139 #3, page 130 #3, and page 184 #1, 9, 21 and 23.

Work and hand in the solutions to the following problems:

1. Page 171 #11.

2. Page 171 #12.

3. Page 184 #6.

4. Page 184 #15.

5. Page 184 #16abc.

6. Page 184 #18.

7. Page 184 #19 (See Theorem page 180 which is VII.30.)

8. Page 184 #25.


Homework VIII                                   Due Thursday, February 25, 2010 in section
Read from 185 through 233.  Learn the regular solids (the Platonic solids) page 539.

1. Make your own "sieve of Eratosthenes" for the numbers 1 through 100.  Explain why you only need to consider primes less than or equal to 10.  (See page 185 #224.)  How does your result compare to what is shown on page 188?

2. Page 194 #1.

3. Page 196 #6.  (There is a formula for the area of a convex, plane quadrilateral with sides of length $a,b,c,d$ consecutively about the figure and with opposite interior angles of $\theta,\varphi$.  Let $s$ be the semi-perimeter. The area is
$$\sqrt{(s-a)(s-b)(s-c)(s-d) - abcd\cos^2\frac{\theta+\varphi}{2}}.)$$

4. Page 211 #2ab.  (You may use your knowledge of calculus to solve this problem.)

5. Page 212 Look at #4 and then do #5.  (Certainly use a calculator.  Show the values of $S_6, S_{12}, S_{24}, S_{48}, S_{96}$.)  See page 204 Proposition 3 to understand that Archimedes found an upper and lower bound for $\pi$.  (The notation $\pi$ for the circumference divided by the diameter came much later.)

6. Page 233 #1.
7. Page 233 #3.
8. Page 233 #13.

The SECOND MIDTERM EXAMINATION on February 26, 2010 will concentrate on material related to Homework V- VIII.