Homework for Week 2
Oct. 1-5, 2007

The textbook exercises listed here should be completed before class begins; students will share solutions to these exercises at the beginning of class. You should be prepared to share a solution to any one of these.

Before Class on Monday, October 1, finish reading Section 9.3 and work the following exercises:
Section 9.3, # 19, 21, 25

Before Class on Tuesday, October 2, read Section 9.4 and work the following exercises:
Section 9.4, # 5, 13, 31

Before Class on Wednesday, October 3, read Section 9.5 and work the following exercises:
Section 9.5, # 1, 5, 17

Before Class on Thursday, October 4, work the following exercises:
Section 9.5, # 21, 23, 33

Before Class on Friday, October 5, read Section 10.1 and work the following exercises:
Section 10.1, # 11, 13, 23

Additional Practice Problems

Practice as many of these problems as you can. You may use your solutions as notes during the quiz on Tuesday, October 9.

Section 9.3, # 23, 27, 29
Section 9.4, # 3, 7, 11, 15, 19, 21, 27, 33
Section 9.5, # 3, 7, 11, 15, 25, 27
Section 10.1, # 3, 5, 15, 19, 21, 27, 29
Your carefully written solutions to the following questions will be due at the beginning of class on **Friday, October 5**.

1. Between 1980 and 2000, the average salary of a high school principal could be modeled by

   \[ S(t) = 2499t + 30,039 \]

   dollars, where \( t \) is the number of years since 1980.

   (a) How fast was the average high school principal’s salary increasing in 1990? Include units in your answer.

   (b) How fast was the average high school principal’s salary increasing in 2000?

   (c) Use a tangent line approximation to estimate the average principal’s salary in 2001.

2. Between 1959 and 1989, the annual per capita income of residents of Washington state could be modeled by

   \[ P(t) = -2.98t^2 + 327.4t + 7881 \]

   dollars, where \( t \) is the number of years since 1959

   (a) Calculate and interpret the meaning of \( P'(30) \).

   (b) Use a tangent line approximation to estimate the annual per capita income in 1990.

3. Let \( f(x) = x^3 - 2x \). Use the limit definition of derivative to calculate \( f'(x) \). (Do not use the **power rule** to answer this question – though of course you may use it to check your answer.)