Time: 20 minutes   Name: _____
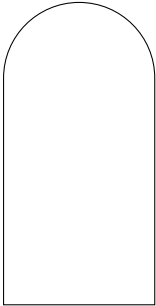
Instructor: Dr. Edward Doolittle   Student #: _____

(marks)   Please do questions 1 and 2. You have 10 minutes to do each question, for a total of 20 minutes for the quiz. A calculator of the type mentioned in the course outline is allowed.

(10)   1. A Norman window has the shape of a rectangle surmounted by a semicircle. If the perimeter of the window must be 40 meters, find the dimensions of the window with greatest area. Hint: the area of a semicircle of radius r is $\pi r^2/2$, and the perimeter of the curved part of the semicircle is πr.

(10)   2. Find $s(t)$ given that $s''(t) = 60t^4 - 24t^2 + 2$, $s(0) = -1$, $s'(0) = 5$.