Homework set #6
BENG 100
Spring 2008
Due: Feb 28, 2008

1. Use data on the dimensions of various vessels, which can be found in the appendix, to answer the following questions. From the dimensions that are given in ranges, pick a reasonable value.

    a. Calculate the pressure drop per cm for a flow rate of 5 L/min in the aorta, a terminal artery, an arteriole, and a capillary. Assume that the 5 L/min flow goes through a single vessel.
    b. Repeat the calculation in part a, but this time assume the 5 L/min flow goes through an array of vessels in parallel. The number of vessels in the array at each level (terminal artery, arteriole, and capillary) is the number that is required to have the same total cross-sectional area as the aorta.
    c. Repeat the calculation in part a, again assuming that the 5 L/min flow goes through an array of vessels. The number of vessels in the array at each level is the number required to achieve the velocity levels listed in Table 8.3.

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