

## Chapter 12

### Example Problems

1. The aorta is the principal blood vessel through which blood leave the heart in order to circulate around the body. The aorta has a radius of about 10.0 mm.
  - a. Calculate the average speed of the blood in the aorta if the flow rate is 5.0 L/min.
  - b. Blood also flows through smaller blood vessels know as capillaries. When the rate of blood flow is 5.0 L/min, the speed of the blood in the capillaries is about 0.33 mm/s. Given that the average diameter of a capillary is 8.0  $\mu\text{m}$ , calculate the number of capillaries in the blood circulatory system.
  
2. The speed of water in a garden hose increases from 1.96 m/s to 25.5 m/s going from the hose to the nozzle. Calculate the pressure in the hose given that the absolute pressure in the nozzle is about  $1.01 \times 10^5$  Pa.

