

Blood flows through a coronary artery that is partially blocked by deposits along the artery wall. Through which part of the artery is the flux (volume of blood per unit time) largest?



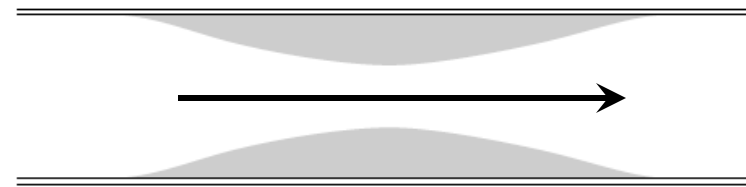
1. The narrow part
2. The wide part
3. Same in both





Blood flows through a coronary artery that is partially blocked by deposits along the artery wall. Through which part of the artery is the speed of the blood the largest?

1. The narrow part
2. The wide part
3. Same in both





You can readily observe that when you run water from a faucet at a moderate steady flow rate, the stream of water narrows as it descends. This implies that the speed of the water at point 2 is _____ the speed at point 1. Which best completes the sentence?

- A. greater than ($>$)
- B. less than ($<$)
- C. equal to ($=$)





To water his lawn, a homeowner uses two hoses. One connects to the faucet, the other to the end of the first hose to make the hose longer. Each hose is three meters long, but one has 20-mm diameter, the other has 40-mm diameter. When he turns on the faucet, the flow of water at the open end of the second hose measures 10 liters/min. Through which hose is the speed of the water faster?

- A. The 20-mm hose
- B. The 40-mm hose
- C. The flow rate is the same in both cases.
- D. The answer depends on which of the two hoses comes first in the flow.



The main blood vessel carrying blood out of your heart is the aorta. It carries blood down towards the legs. In your abdomen it splits into two, the common iliac arteries. The diameter of a typical aorta is 2 cm, while the iliac arteries typically have diameters of about 1 cm. A typical value for the speed of the blood in the aorta is $v_A = 30 \text{ cm/s}$ when the heart is contracting. While this is occurring, the speed of the blood flowing in the iliac arteries will be closest to

1. 120 cm/s
2. 60 cm/s
3. 30 cm/s
4. 15 cm/s
5. 7.5 cm/s
6. It's not close to any of these.

