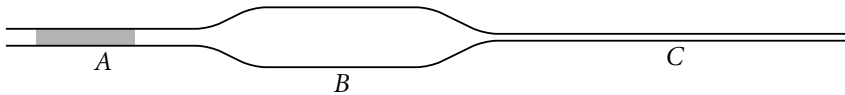


Section  
**9-3**

**HOLT PHYSICS**  
**Math Skills**

*Fluids in Motion*

Every second,  $1.20 \text{ m}^3$  of water enters a heating system through a pipe of medium width, *A*, with a cross-sectional area of  $0.200 \text{ m}^2$ . The water then flows into a wide pipe, *B*, with an area of  $0.600 \text{ m}^2$ , and flows out through a narrow pipe, *C*, with an area of  $0.100 \text{ m}^2$ .



1. What is the flow rate in each pipe?  
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2. What is the length of the segment of pipe *A* that contains  $1.20 \text{ m}^3$  of water? Sketch the marks on the diagram above showing the segments of pipes *B* and *C* that would contain the same amount of water. What is the length of each segment?  
\_\_\_\_\_
3. How much time is required for water to travel the lengths you found in pipe *A*? in pipe *B*? in pipe *C*?  
\_\_\_\_\_
4. What is the flow speed of water in each pipe?  
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5. Does the speed of water increase when it enters a narrow pipe? Does the flow rate increase? Explain.  
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