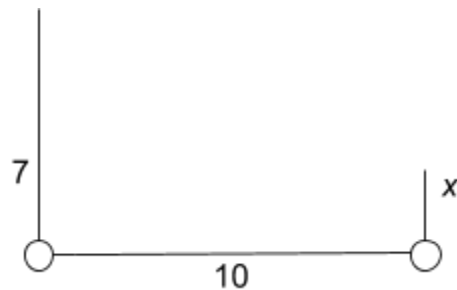
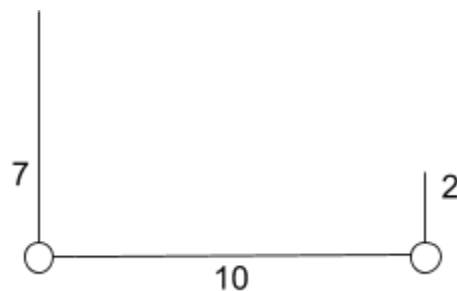


You know the rule: for a shape to be a triangle, the sum of any two sides must be greater than the third side.

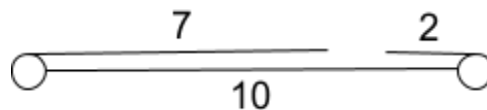
Yes, but why is that? I, for one, am not too keen on blind memorization. Sure, memorizing a few shortcuts here and there can help on a timed test, and possessing a certain core of mathematical knowledge is a must for success, but logic that grows from taking the time to understand a concept is much more powerful a tool to have at your disposal. To illustrate this triangle concept, picture three boards of wood, with each of two smaller pieces attached to a larger board in the center by a hinge, as in the following figure:



We know from the given information that  $x$  is an integer. What would happen if we made it 2?



When we close those hinges, will we get a triangle?



No, we will not. In fact, it is now easy to visualize how 3 would bridge the gap, but only just, and we would have two segments of equal length right on top of each other. Such a shape would not be called a triangle by any stretch. Thus, 4 will be the first valid integer value for  $x$ , and each subsequent integer will also work through 16. Once we hit 17, we run into problems, since  $7 + 10$  only adds up to that value. 4-16, inclusive, gives us 13 integer values for  $x$ . Watch out for the trick answer in (E), which corresponds to the largest integer value for  $x$ , or in other words, answers a different question that is not being asked. (C) it is.