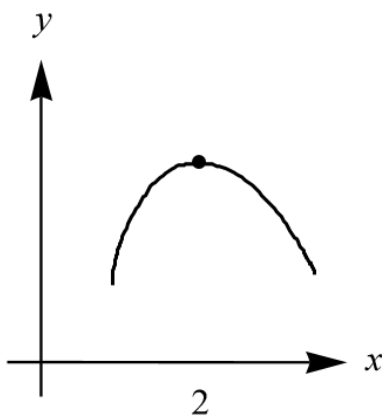


**Exercise 11**

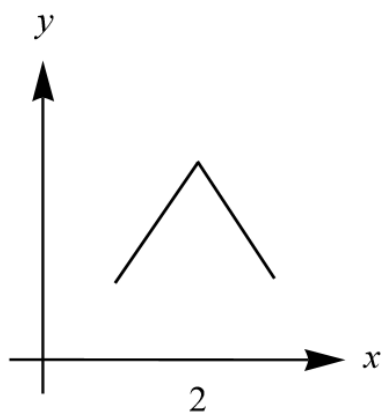
- (a) Sketch the graph of a function that has a local maximum at 2 and is differentiable at 2.
- (b) Sketch the graph of a function that has a local maximum at 2 and is continuous but not differentiable at 2.
- (c) Sketch the graph of a function that has a local maximum at 2 and is not continuous at 2.
- 

**Solution****Part (a)**

Below is the graph of a function that satisfies the conditions. The graph has to be smooth at 2 for it to be differentiable there.

**Part (b)**

Below is the graph of a function that satisfies the conditions. The graph has to have a kink at 2 for it to be continuous but not differentiable there.



**Part (c)**

Below is the graph of a function that satisfies the conditions. The graph has to have a jump discontinuity at 2 for it to not be continuous but have a local maximum there.

