SATPREP

Rules for Sketch derivative curve from curve

1. If the first derivative f' is positive (+) , then the function f is increasing (↑) .

2. If the first derivative f' is negative (-) , then the function f is decreasing (↓).

3. If the second derivative f'' is positive (+) , then the function f is concave up (∪) .

4. If the second derivative f'' is negative (-) , then the function f is concave down (∩) .

5. The point $x=a$ determines a relative maximum for function f if f is continuous at $x=a$, and the first derivative f' is positive (+) for $x<a$ and negative (-) for $x>a$. The point $x=a$ determines an absolute maximum for function f if it corresponds to the largest y-value in the range of f .

6. The point $x=a$ determines a relative minimum for function f if f is continuous at $x=a$, and the first derivative f' is negative (-) for $x<a$ and positive (+) for $x>a$. The point $x=a$ determines an absolute minimum for function f if it corresponds to the smallest y-value in the range of f .

7. The point $x=a$ determines an inflection point for function f if f is continuous at $x=a$, and the second derivative f'' is negative (-) for $x<a$ and positive (+) for $x>a$, or if f'' is positive (+) for $x<a$ and negative (-) for $x>a$.