

A3

(a) Function in Panel I on $[a, c]$

The function in Panel I is convex on $[a, c]$ because for any two points in this interval, the function always lies below or on the line segment connecting them. Since convexity requires that the function does not rise above any such line segment, the function satisfies the convexity condition on this interval.

(b) Function in Panel II on $[a, d]$

The function in Panel II is not convex on $[a, d]$ because there exist points where the function is above the straight line segment connecting two points in the interval. Specifically, if we draw a line connecting $(a, f(a))$ and $(d, f(d))$, there are points around b where the function curves above this line, violating the convexity condition. Since convex functions must always stay below or on such line segments, this counterexample shows that the function is not convex on $[a, d]$.