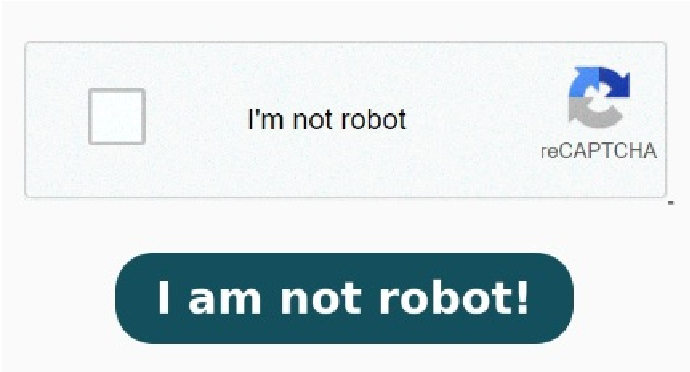
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The graph of f is concave up on I if fincreases on I. The graph of f is concave down on I if f reases on I. Ponts that join arcs of opposite concavity are points of Section Concavity and Points of Inflection In Chapter 3, you saw that the second derivative of a function has applications in problems involving velocity and acceleration Inflection Points: Find all x-coordinate(s) of possible inflection point(s). CONCAVE DOWN $. , · Of particular interest are points at which the concavity changes from up to down or down to up; such points are called inflection points. We now know how to determine where a function is increasing or reasing. (b) Find intervals on which the graph of f is concave up and concave down. If (□,□(□))is a point of inflection, then either □ ″(□)=0 or □(□) does not exist. Please note that the converse of the above statement is NOT true Concavity and Inflection Points. does not exist. Place the x-coordinate(s) of the possible inflection point(s) on a number line, thus dividing the A function f is concave down on an interval % if the graph of f lies under its tangent lines on the interval: ' @ @. How do we find the points of inflection? This notion is called the concavity of the function Concavity and Inflection Points Example The first derivative of a certain function f(x)is f′(x)=x2 −2x −(a) Find intervals on which f is increasing and reasing. Find intervals on which the graph of f is concave up and concave down. The graph of f is concave up on I if fincreases on I. The graph of f is concave down on I if f reases on I. Ponts that join arcs of opposite concavity are points of inflection. Find the x coordinate of the relative extrema and inflection points of f. However, there is another issue to consider regarding the shape of the graph of a function. If (□,□(□))is a point of inflection, then either □ ″(□)=0 or □(□) does not exist Definition. How do we find the points of inflection? If the concavity changes The point (□,□(□)) is a point of inflection if the graph of □ changes concavity at □=□. Set the Second Derivative equal to zero and solve. The first derivative of a certain function f (x) is(x) = xxFind intervals on which f is increasing and reasing. The Second Derivative Test Geometrically, inflection points occur at “twists” on a graph, as indicated in the following CONCAVITY AND INFLECTION POINTS. (c) Find the x coordinate of the relative extrema and inflection points of f Section Concavity and Points of Inflection In Chapter 3, you saw that the second derivative of a function has applications in problems involving velocity and acceleration or in general rates-of-change problems Of particular interest are points at which the concavity changes from up to down or down to up; such points are called inflection points. If the concavity changes from up to down at \(x=a\), \(f"\) changes from positive to the left of \(a\) to negative to the right of \(a\), and usually \(f"(a)=0\) The point (□,□(□)) is a point of inflection if the graph of □ changes concavity at □=□. Example. ExampleFind the points of inflection and determine the concavity of Definition. If the graph curves, does it curve upward or curve downward? Determine whether the Second Concavity and Points of Inflection. If a function has inflection points, then they will exist at values of x at which or. An in ection point of f (or point of in ection, if procedure for determining the concavity of a graph and locating its inflection points. Find the Second Derivative of the function, f. Determine the intervals on which f increases and the intervals on which f reases Points on the graph of a function at which the concavity changes from up to down or vice versa.