# **Methods Revision Notes –** Chapter 1

Differentiation Basics

, 0 etc.

For find of the tangent line at the point (2,80)

, substitute (2,80) ⟹

Product Rule

Quotient Rule

Chain Rule

If and then

If and

Substitute

Determining the nature of stationary points

For a function , if , then there is a stationary point at

Test 1: The Sign Test

A maximum turning point: A minimum turning point:

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A horizontal point of inflection:

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| --- | --- | --- | --- |
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Test 2: The Second Derivative Test

If and , the curve is concave up and is a minimum point

If and , the curve is concave down and is a maximum point

If , then check for a point of inflection, i.e. if and have opposite signs. If also , then ) is a horizontal point of inflection

Where C(x) gives the cost per item, and x is the number of items, the average cost for C(a) items is

Small Changes

Find the small change in V when r changes from 5 to 5.1 in the equation

Find the percentage change in V when r changes by 5% in the equation

⟹ 15%