

CALCULUS JOURNAL
CURVE SKETCHING

1. (a) The _____ derivative determines where a graph is concave up and down while the _____ derivative determines where a graph is increasing & decreasing.
2. (a) Two ways to find critical points are _____
or by _____.
- (b) Points found by the second method of (a) are called _____.
- (c) On a graph, critical points are usually located at _____.
- (d) On a graph inflection points are found by _____
and are located where _____.
3. (a) High or low points on a curve, compared to the points on either side of them, are called _____
_____ or _____ extrema.
- (b) The highest and lowest points on a curve are called _____.
4. How is the curve sketching process influenced by a function that has vertical asymptotes?

5. (a) Relative extrema can be found without graphing the function by using the _____
and _____ tests.
- (b) The first derivative test is nicknamed _____.
- (c) The _____ derivative test is sometimes inconclusive if _____

6. (a) On a closed interval, such as $[-9, 5]$, you determine whether a critical point is an absolute maximum or minimum by:
 - 1) _____
 - 2) _____
- (b) On an open interval, such as $(-\infty, 6)$, you determine whether a critical point is an absolute maximum or minimum by:
 - 1) _____
 - 2) _____
 - 3) _____
7. When looking at the *graph of the derivative* of a function, how do you identify each of the following about the original function?

Critical points _____

Increasing & decreasing intervals _____

Inflection points _____

Concave up & down intervals _____

8. Important Rules, Formulas, Etc.
(a) Mean Value Theorem formula

(b) First Derivative Test steps

(c) Second Derivative Test steps

(d) Methods for identifying asymptotes

Vertical

Horizontal

Slant (Oblique)

Curvilinear

(e) Keystrokes necessary to perform long division in CAS.