MTHSC 102 Section 2.3 – Rates of Change Notation and Interpretation

Kevin James

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EQUIVALENT TERMINOLOGY

All of the following phrases mean the same.

• Instantaneous rate of change

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Equivalent Terminology

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EQUIVALENT TERMINOLOGY

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- derivative

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INTERPRETING DERIVATIVES

When discussing instantaneous rate or change at a point (or the derivative of a function at a point), be sure to include the following information.

1 Specify the input value.

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- **2** Specify the quantity that is changing.

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- 8 Indicate whether the change is a decrease or increase.
- **4** Give the numerical answer labeled with proper units.
- 6 The units for the derivative should be the output units per one input unit (as for average rate of change).

Note

We can tell a lot about the graph of a smooth continuous function from the values of its derivative.

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- The point of most rapid increase/decrease of f(x) (-i.e. the max/min of f'(x)) occurs at an inflection point of the graph of f(x).
 - To the left of the point of most rapid increase the graph of f(x) is concave up. To the right of the point of most rapid increase the graph of f(x) will be concave down.

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 - 2 To the left of the point of most rapid decrease, the graph of f(x) is concave down. To the right of the point of most rapid decrease, the graph of f(x) is concave up.