MSLC Workshop Series

Math 1151 – Workshop

Indeterminate Forms and L’Hopital’s Rule

**INDETERMINATE FORMS**

*What does it mean for a limit’s form to be indeterminate?*

*Which forms are indeterminate?*

Circle the forms which are indeterminate.

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***Determining the Form Exercises:***

Write the form of each of the following limits.

1. 2.

3. 4.

5. 6.

7. 8.

9. 10.

11. 12. 

13. 14.

**L’HOPITAL’S RULE**

L’Hopital’s rule is a way of dealing with indeterminate forms of the type  or .

**L’Hopital’s Rule**: If you want to know ,

and IF: #1. both  and 

- OR -

#2. both  and ,

THEN: .

**Notes: 1. This is NOT the quotient rule for derivatives**

**2. L’Hopital’s Rule give the WRONG answer if #1 or #2 is not satisfied.**

Examples:





***L’Hopital’s Rule Exercises*:**

Evaluate the following limits, using L’Hopital’s Rule ***if appropriate***

1. 

2. 

3. 

4. 

5. 

**FORCING A FRACTION**

L’Hopital can also help us with the other indeterminate forms if we can **force a fraction**

that yields  or .

**Examples**:

1. 

2. 

3. 

***Forcing a Fraction Exercises:***

Evaluate the following by applying L’Hopital’s Rule ***if appropriate***.

1.  2. 

3.  4. 

5.  6. 