**Some important limits:**

1.  **2.** 

**Proof:** Given that, **Proof:** Given that,

****

1.  **4.** 

**Proof:** Given that, **Proof:** Given that,



1. 

**Proof:** Given that,

****

**L’ Hospital’s Rule:** If two functions and are continuous at  , also their derivatives , are continuous at this point and  but then L’ Hospital’s rule states as,



In case, , the rule maybe extended.

**Indeterminate forms:** If  then it is called an indeterminate form at . The forms , , , ,  and  are also indeterminate forms.

**Evaluate the following limits:**

**Problem 01: Find**  **Problem 02: Find** 

**Sol:** Given that, **Sol:** Given that,

****

**Problem 03: Find**  **Problem 04: Find** 

**Sol:** Given that, **Sol:** Given that,

****

**Problem 05: Find**  **Problem 05: Find** 

**Sol:** Given that, **Sol:** Given that,

****

**Problem 06: Find**  **Problem 07: Find** 

**Sol:** Given that, **Sol:** Given that,

****

**Problem 08: Find**  **Problem 09: Find** 

**Sol:** Given that, **Sol:** Given that,

**Homework:**

**Problem 01: Find**  Ans: 1

**Problem 02: Find**  Ans: 

**Problem 03: Find**  Ans: 

**Problem 04: Find**  Ans: 

**Problem 05: Find**  Ans: 

**Problem 06: Find**  Ans: 

**Problem 07: Find**  Ans: 1