**EXAMPLE 1:** Find the limit of the function  at

Sol:

 





***H.W* Ex 2**: 

***H.W* Ex 3:** 

Find the limit of function

1. The limit laws
2. 
3. 
4. 
5.  (To finding limits by calculating)
6. 
7. 
8. 
9. **Limit of Rational Function**

**EXAMPLE 1:** 

**Ex 2:** 

Limit of Rational function can be found by substitution if the limit of denominator is not zero

**Ex 3:** 

**Ex 4:** 

**Ex 5:** 

**Ex 6:** 

**Ex 7:** 

**Ex 8:** 

**Ex 9:** 

**Ex 10:** 

Hint 



**Ex 1** 

1. **Limit at infinity of Rational function**

**Hint**

1. 
2. 

To find Limit we can divide the numerator and denominator by highest power of x in denominator

1. 
2. 

If the value of 

**EXAMPLE 1:** 

Sol:

 





**Ex 2:**  ans (0)

**Ex 3:**  ans (1)

**Ex 4:**  ans (7/4)

1. **Limit of Root function**

If we have Root number

Root  Root

**EXAMPLE 1:** Find limit of  at 

 Sol:

 

 

 

***H.W* Ex 2**

**EXAMPLE 3:** 

Sol:

 

 

 



***H.W* Ex 4:** 

***H.W* Ex 5:** 

**11. Continuity**

Continuous function: A function is continuous if it is continuous at each point of its domain.

**The Continuity test**

The function  is continuous at  if and only if all three of following statement are true

1.  exit “ in the domain of ”
2.  exit “ has a limit at ”
3.  ”The limit equal the function value”

Hint if  continues at and  continuous at 

1. 
2. 

……. continuous

1. 
2. 

**EXAMPLE 1:** Determine if the following function is continuous at 

Sol:

1. 
2. 





The function is not continuous at 

***H.W* Ex 2:** Determine if the is continuous at  ? 

**EXAMPLE 3:** if  continuous at ?

Sol:

1.  at 



1. 





is continuous

***H.W* Ex 4:** if  where is  continuous, and where it is discontinuous ?

**EXAMPLE 5:** if  find the value a if  continuous.

Sol:

1. 





1. 

If  is continuous





