42 Lecture - MTH101

Important Mcqs

Which of the following tests can be used to determine if an infinite series converges or diverges?

a) Limit comparison test

b) Ratio test

c) Integral test

d) All of the above

Answer: d) All of the above

Which of the following series is divergent?

a) 1 + 1/2 + 1/4 + 1/8 + ...

b) 1 + 1/3 + 1/5 + 1/7 + ...

c) 1/2 + 1/4 + 1/6 + 1/8 + ...

d) 1 - 1/2 + 1/3 - 1/4 + ...

Answer: a) 1 + 1/2 + 1/4 + 1/8 + ...

Which of the following tests should be used to determine the convergence of a series with only positive terms?

a) Integral test

b) Ratio test

c) Alternating series test

d) Divergence test

Answer: b) Ratio test

Which of the following series is convergent?

a) 1 - 1/2 + 1/4 - 1/8 + ...

b) 1 + 1/2 + 1/3 + 1/4 + ...

c) 1 + 1/4 + 1/16 + 1/64 + ...

d) 1/2 + 1/3 + 1/4 + 1/5 + ...

Answer: a) 1 - 1/2 + 1/4 - 1/8 + ...

What is the nth-term test for divergence?

a) The series diverges if the limit of the nth term as n approaches infinity is zero.

b) The series converges if the limit of the nth term as n approaches infinity is zero.

c) The test can only be used for series with alternating terms.

d) The test can only be used for series with positive terms.

Answer: a) The series diverges if the limit of the nth term as n approaches infinity is zero.

Which of the following tests can be used to determine the convergence of an alternating series?

a) Divergence test

b) Ratio test

c) Integral test

d) Alternating series test

Answer: d) Alternating series test

Which of the following series is divergent?

a) 1 - 1/3 + 1/5 - 1/7 + ...

b) 1 + 2 + 3 + 4 + ...

c) 1/2 + 1/3 + 1/5 + 1/7 + ...

d) 1/2 + 1/4 + 1/8 + 1/16 + ...

Answer: b) 1 + 2 + 3 + 4 + ...

Which of the following tests should be used to determine the convergence of a series with alternating signs and decreasing absolute values?

a) Divergence test

b) Ratio test

c) Integral test

d) Alternating series test

Answer: d) Alternating series test

Which of the following tests can be used to determine if a series is absolutely convergent?

a) Ratio test

b) Alternating series test

c) Integral test

d) Divergence test

Answer: c) Integral test

Which of the following series is divergent?

a) 1/ln(n)

b) 1/n^2

c) 1/n!

d) 1/2^n

Answer: d) 1/