

This print-out should have 16 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

001 0.0 points

If the n^{th} partial sum of $\sum_{n=1}^{\infty} a_n$ is given by

$$S_n = \frac{4n+3}{n+2},$$

what is a_n when $n \geq 2$?

1. $a_n = \frac{5}{n(n+2)}$
2. $a_n = \frac{11}{n(n+2)}$
3. $a_n = \frac{11}{(n+2)(n+3)}$
4. $a_n = \frac{5}{(n+2)(n+3)}$
5. $a_n = \frac{11}{(n+2)(n+1)}$
6. $a_n = \frac{5}{(n+2)(n+1)}$

002 0.0 points

Determine whether the series

$$\sum_{n=0}^{\infty} 2 \left(\frac{1}{3} \right)^n$$

is convergent or divergent, and if convergent, find its sum.

1. convergent, sum = $-\frac{7}{2}$
2. convergent, sum = $\frac{3}{2}$
3. divergent
4. convergent, sum = 3

5. convergent, sum = $\frac{7}{2}$

003 0.0 points

Determine whether the series

$$\sum_{k=1}^{\infty} \frac{k+2}{k^2}$$

converges or diverges.

1. series is convergent
2. series is divergent

004 0.0 points

What is the smallest number of terms of the series

$$\sum_{m=1}^{\infty} \frac{4}{(m+1)(\ln(m+1))^2}$$

you would need to add for its sum to be less than or equal to $\frac{1}{10}$?

1. e^{40} terms
2. e^{30} terms
3. e^{45} terms
4. e^{35} terms
5. e^{25} terms

005 0.0 points

Determine whether the series

$$\sum_{n=1}^{\infty} \frac{2}{n^3+5}$$

converges or diverges.

1. series is divergent

2. series is convergent

006 0.0 points

Determine whether the series

$$\sum_{n=3}^{\infty} \frac{n^2 - 9}{n^2 + 3n}$$

is convergent or divergent.

1. the series is convergent

2. the series is divergent

007 0.0 points

Determine whether the series

$$\sum_{m=4}^{\infty} \frac{3}{m(\ln m)^4}$$

converges or diverges.

1. converges

2. diverges

008 0.0 points

Determine if the series

$$\sum_{k=1}^{\infty} \frac{2 + 3^k}{4^k}$$

converges or diverges, and if it converges, find its sum.

1. converges with sum = 5

2. converges with sum = $\frac{11}{3}$

3. converges with sum = 4

4. series diverges

5. converges with sum = $\frac{13}{3}$

6. converges with sum = $\frac{14}{3}$

009 0.0 points

Which one of the following properties does the series

$$\sum_{n=2}^{\infty} (-1)^n \frac{n}{n^2 + 1}$$

have?

1. absolutely convergent

2. divergent

3. conditionally convergent

010 0.0 points

Determine whether the series

$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{e^{1/n}}{2n}$$

is absolutely convergent, conditionally convergent or divergent.

1. absolutely convergent

2. divergent

3. conditionally convergent

011 0.0 points

Which of the following properties does the series

$$\sum_{n=1}^{\infty} \frac{(-5)^n}{(2n)!}$$

have?

1. conditionally convergent

2. divergent

3. absolutely convergent

012 0.0 points

Determine whether the series

$$\sum_{m=1}^{\infty} (-1)^{m-1} \frac{1}{\sqrt{1+m^2}}$$

is absolutely convergent, conditionally convergent, or divergent.

1. absolutely convergent
2. conditionally convergent
3. divergent

013 0.0 points

Determine whether the series

$$\sum_{n=1}^{\infty} \frac{(-1)^{n+4}}{\sqrt{n}}$$

is absolutely convergent, conditionally convergent, or divergent.

1. absolutely convergent
2. conditionally convergent
3. divergent

014 0.0 points

Which one of the following properties does the series

$$\sum_{n=1}^{\infty} \frac{n(-8)^n}{5^{n-1}}$$

have?

1. absolutely convergent
2. divergent
3. conditionally convergent

015 0.0 points

Determine whether the following series

$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{3^n}{3n^2 + 2}$$

is absolutely convergent, conditionally convergent, or divergent.

1. conditionally convergent
2. absolutely convergent
3. divergent

016 0.0 points

Which one of the following properties does the series

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{5n+4}$$

have?

1. absolutely convergent
2. divergent
3. conditionally convergent