Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=0ef23d13-95b2-4026-...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 14 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 18 of 30 (Start time: 07:00:54 AM, 06 July 2020)

Total Marks: 1

Suppose that $a_n > 0$, $b_n > 0$ *and* $----$. *Then* $\sum b_n = \infty$ *if* $\sum a_n = \infty$.

subscribe w's studio for more educational vudeos

Select the correct option:

Reload Math Equations

- $\frac{a_{n+1}}{a_n} = \frac{b_{n+1}}{b_n}$
- $\frac{a_{n+1}}{a_n} \leqslant \frac{b_{n+1}}{b_n}$
- $\frac{a_{n+1}}{a_n} \geqslant \frac{b_{n+1}}{b_n}$
- None of these

Theorem: Suppose that $a_n > 0$, $b_n > 0$, and

$$\frac{a_{n+1}}{a_n} \leq \frac{b_{n+1}}{b_n}.$$

Then

- $\sum b_n = \infty$ if $\sum a_n = \infty$.

MC190405102: ZAKIA BIBI

Time Left 85 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 26 of 30 (Start time: 07:10:28 AM, 06 July 2020)

Total Marks: 1

Identify the countable set

Select the correct option

subscribe w's studio for more educational vudeos

Reload Math Equations

- The set of irrational numbers.
- The interval $[0, 1]$.
- $\mathbb{N} \times \mathbb{N}$.
- The interval $[1, 2]$.

Theorem: The set $\mathbb{N} \times \mathbb{N}$ is countable.

Proof: Define the mapping $f : \mathbb{N} \times \mathbb{N} \to \mathbb{N}$ by

$$f(k, l) = 2^k 2^l.$$

Use above proposition to prove that $\mathbb{N} \times \mathbb{N}$ is countable.

MC190405102: ZAKIA BIBI

Time Left 85 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 25 of 30 (Start time: 07:08:58 AM, 06 July 2020)

Total Marks: 1

If $\{a_n\}_k^\infty$ is an infinite sequence of real numbers, the symbol – – – – – – – – – isan infinite seriesandis the n^{th}term of series.

Select the correct option

subscribe w's studio for more educational vudeos

Reload Math Equations

- ○ $\prod_k^\infty a_n$
- ○ $\sum_{n=k}^\infty a_n$
- ○ a_n
- ○ None of these

2.8 Series

If $\{a_n\}_k^\infty$ is an infinite sequence of real numbers, the symbol

$$\sum_{n=k}^\infty a_n$$

is an *infinite series*, and a_n is the *nth term* of the series.

We say that $\sum_{n=k}^\infty a_n$ *converges to the sum* A, and write

MC190405102: ZAKIA BIBI

Time Left 82 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 30 of 30 (Start time: 07:14:20 AM, 06 July 2020)

Total Marks: 1

The number e is ____.

subscribe w's studio for mo

Select the correct option

- rational number
- irrational number

Theorem: The number e is an irrational number.

Proof: Before we start the proof recall the following identity

$$0 < e - s_n < \frac{1}{n!n}.$$

Suppose on contrary that e is a rational number. Then $e = p/q$, where p and q are positive integers.

quations

subscr

85 sec(s)

l, 06 July 2020

Total Marks: 1

h Equations

Repeat



subs

Repeat



me Left 82 sec(s)

2 AM, 06 July 2020

Total Marks: 1

Math Equations

MC190405102: ZAKIA BIBI

Time Left 76 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 20 of 30 (Start time: 07:03:15 AM, 06 July 2020)

Total Marks: 1

$If \sum a_n$ ------, $then \lim_{n\to\infty} a_n = 0$

Select the correct option

subscribe w's studio for more educational vudeos

Reload Math Equations

- diverges
- converges

Corollary: If $\sum a_n$ converges, then $\lim_{n\to\infty} a_n = 0$

Proof: If $\sum a_n$ converges, then for each $\varepsilon > 0$ there is an integer K such that

$$\left|\sum_{n=k}^{\infty} a_n\right| < \varepsilon \quad \text{if} \quad k \geq K;$$

Repeat



MC190405102: ZAKIA BIBI

Time Left 76 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 19 of 30 (Start time: 07:02:21 AM, 06 July 2020)

Total Marks: 1

The set $A = \{x \in \mathbb{N} : x^2 - 2x + 1 = 0\}$ is equal to

subscribe w's studio for more educational vudeos

Select the correct option

Reload Math Equations

- $\{0\}$.
- $\{1, 2\}$.
- $\{1\}$.
- $\{\pm 1\}$.

just take a concept and use"Common sense"

- $\{x \in \mathbb{N} : x^2 - 3x + 2 = 0\} = \{1, 2\}$.
- $\{x \in \mathbb{N} : x^2 - 4x + 2 = 0\}$.
- The set of even numbers $\{2k : k \in \mathbb{N}\}$.
- The set of odd numbers $\{2k - 1 : k \in \mathbb{N}\}$.

MC190405102: ZAKIA BIBI

Time Left 86 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 28 of 30 (Start time: 07:12:36 AM, 06 July 2020)

Total Marks: 1

Which one is an irrational number

subscribe w's studio for more educational vudeos

Select the correct option

Reload Math Equations

- $\frac{22}{7}$.
- π.
- $\frac{p+q}{pq}$, where p, q are nonnegative integers.
- $\sqrt{s}$, where s is a perfect square.



pi is true option

sub

Repeat



0

1

MC190405102: ZAKIA BIBI

Time Left 77 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 15 of 30 (Start time: 06:56:15 AM, 06 July 2020)

Total Marks: 1

(In Comparison test) Suppose that $0 \leqslant a_n \leqslant b_n,\ n \geqslant k$. *Then if* $\sum a_n < \infty,\ \sum b_n < ---$.

subscribe w's studio for more educational vudeos

Select the correct option

Reload Math Equations

- 0
- 1
- ∞
- None of these



2.11 The Comparison Test

Theorem: Suppose that

$$0 \leq a_n \leq b_n, \quad n \geq k.$$

Then

- $\sum a_n < \infty$ if $\sum b_n < \infty$.
- $\sum b_n = \infty$ if $\sum a_n = \infty$.

MC190405102: ZAKIA BIBI

Time Left 80 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 23 of 30 (Start time: 07:06:15 AM, 06 July 2020)

Total Marks: 1

Which one is true for the two sets given by $T = \{x \in (0,1) : x \text{ is rational}\}$ *and* $V = \{x \in (0,1) : x \text{ is irrational}\}$?

subscribe w's studio for more educational

Select the correct option

- $T \cup V = T$
- $T \cup V = V$
- $T \cap V = \text{empty}$
- None of these

Then P_n is true for $n \geq n_0$.

Example: Let $S = \{x \in \mathbb{R} : 0 < x < 1\}$, $T = \{x \in (0,1) : x \text{ is rational}\}$, and $U = \{x \in (0,1) : x \text{ is irrational}\}$. Then $S \supset T$ and $S \supset U$, and the inclusion is strict in both cases. The unions of pairs of these sets are

$$S \cup T = S, \quad S \cup U = S, \quad \text{and} \quad T \cup U = S,$$

and their intersections are

$$S \cap T = T, \quad S \cap U = U, \quad \text{and} \quad T \cap U = \emptyset.$$

subscr

Repeat



subs

Repeat



MC190405102: ZAKIA BIBI

Time Left 84 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 27 of 30 (Start time: 07:11:58 AM, 06 July 2020)

Total Marks: 1

$$\textit{The series } \sum_{n=k}^{\infty} a_n \text{ ---------, } \textit{if } (-1)^n a_n > 0, \quad |a_{n+1}| < |a_n|, \textit{ and } \lim_{n\to\infty} a_n = 0.$$

Example: *The series* $\sum_k^\infty a_n$ *converges if* $(-1)^n a_n > 0$, $|a_{n+1}| < |a_n|$, *and* $\lim_{n\to\infty} a_n = 0$.

subscribe w's studio for more educational vu

Select the correct option

- *converges*
- *diverges*

MC190405102: ZAKIA BIBI

MTH621:Grand Quiz

Time Left 84 sec(s)

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 27

s: 1

Select the cor

ns

subscribe w

Repeat



Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=fdcf4166-9d02-4248-8...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 86 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 21 of 30 (Start time: 07:04:06 AM, 06 July 2020)

Total Marks: 1

The set of terms of $\{s_{n_k}\}$ is contained in the set of terms of $\{s_n\}$ implies

subscribe w's studio for n

Select the correct option

Since the set of terms of $\{s_{n_k}\}$ is contained in the set of terms of $\{s_n\}$,

$\sup\{s_n\} \geq \sup\{s_{n_k}\}$.

- $\sup\{s_n\} = \sup\{s_{n_k}\}$.
- $\sup\{s_n\} \leqslant \sup\{s_{n_k}\}$.
- $\sup\{s_n\} \geqslant \sup\{s_{n_k}\}$.
- $\{s_n\}$ is convergent.

MC190405102: ZAKIA BIBI

Time Left 88 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 29 of 30 (Start time: 07:13:05 AM, 06 July 2020)

Total Marks: 1

Every sequence $\{s_n\}$ of real numbers has a unique limit superior, $\overline{s}$, and a unique limit inferior, $\underline{s}$, in the extended reals, and – – – –

Theorem: Every sequence $\{s_n\}$ of real numbers has a unique limit superior, $\overline{s}$, and a unique limit inferior, $\underline{s}$, in the extended reals, and

$\underline{s} \leq \overline{s}$.

subscribe w's studio for more edu

Select the correct option

- $\underline{s} \geqslant \overline{s}$
- $\underline{s} \leqslant \overline{s}$
- $\underline{s} = \overline{s}$
- *None of these*

MC1904051

MTH621:Gra

Question # 2

Every seq

subscribe w

Repeat



subscr

Repeat



2020

arks: 1

tions

MC190405102: ZAKIA BIBI

Time Left 88 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 16 of 30 (Start time: 06:57:50 AM, 06 July 2020)

Total Marks: 1

Which statement is true about the sequence $s_n = (-1)^n n$

Example: If $s_n = [1+(-1)^n]n$, then $\{s_n\}$ is bounded below $(s_n \geq 0)$ but unbounded above.

$\{-s_n\}$ is bounded above $(-s_n \leq 0)$ but unbounded below.

If $s_n = (-1)^n$, then $\{s_n\}$ is bounded.

If $s_n = (-1)^n n$, then $\{s_n\}$ is not bounded above or below.

subscribe w's studio for mor

Select the correct option

- The sequence is convergent.
- The sequence is decreasing.
- The sequence is not bounded above or below.
- The sequence is divergent to $-\infty$.

subs

Repeat



subsc

Repeat



subsc

Repeat



Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=0a14477e-3563-4f76-...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 84 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 22 of 30 (Start time: 07:04:32 AM, 06 July 2020)

Total Marks: 1

$If\ s_n = (2n+1)/(n+1),\ then\ lim_{n\to\infty} s_n =$ ------

Example: If $s_n = \left\{\frac{2n+1}{n+1}\right\}$, then $\lim_{n\to\infty} s_n = 2$, since

$$|s_n - 2| = \left|\frac{2n+1}{n+1} - \frac{2n+2}{n+1}\right| = \frac{1}{n+1};$$

subscribe w's studio for more educational vu

Select the correct option

O	3
O	2
O	4
O	None of these

subsc

Repeat



Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=d4328ef1-85de-48bb-...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 66 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 24 of 30 (Start time: 07:07:47 AM, 06 July 2020)

Total Marks: 1

Let $\sum_{n=k}^{\infty} a_n = A$ and $\sum_{n=k}^{\infty} b_n = B$, where A and B are finite. Then $\sum_{n=k}^{\infty} ca_n =$ - - - - - -

subscribe w's studio fo

Select the correct option

- $c + A$
- $c - A$
- $\frac{c}{A}$
- cA

Theorem: Let $\sum_{n=k}^{\infty} a_n = A$ and $\sum_{n=k}^{\infty} b_n = B$, where A and B are finite. Then

$$\sum_{n=k}^{\infty} (ca_n) = cA$$

if c is a constant,

∞

subsc

Repeat



sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 14 of 30 (Start time: 06:55:59 AM, 06 July 2020)

Total Marks: 1

Identify the identical sequences

Examples: Usually we are interested only in the terms of a sequence and the order in which they appear, but not in the particular value of k in (??). Therefore, we regard the sequences The sequences are

$$\left\{\frac{1}{n-2}\right\}_3^\infty \quad \text{and} \quad \left\{\frac{1}{n}\right\}_1^\infty$$

identical.

Select the correct option

subscribe vu s studio fo

- ○ $\left\{\frac{1}{n^2-2}\right\}_3^\infty$ and $\left\{\frac{1}{n}\right\}_1^\infty$.
- ○ $\left\{\frac{1}{n}\right\}_3^\infty$ and $\left\{\frac{1}{n}\right\}_1^\infty$.
- ○ $\left\{\frac{1}{n-2}\right\}_3^\infty$ and $\left\{\frac{1}{n^2}\right\}_1^\infty$.
- ■ $\left\{\frac{1}{n-2}\right\}_3^\infty$ and $\left\{\frac{1}{n}\right\}_1^\infty$.

MC190405102: ZAKIA BIBI

Time Left 23 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 17 of 30 (Start time: 06:59:35 AM, 06 July 2020)

Total Marks: 1

Which one is true for the two sets given by $S = \{x \in R : 0 < x < 1\}$ *and* $T = \{x \in (0,1) : x \text{ is rational}\}$?

subscribe w's studio for more educationa

Select the correct option

- [x] $S \cap T = T$
- [ ] $S \cap T = T$
- [ ] $S \cap T = S$
- [ ] *None of these*

Then P_n is true for $n \geq n_0$.

Example: Let $S = \{x \in \mathbb{R} : 0 < x < 1\}$, $T = \{x \in (0,1) : x \text{ is rational}\}$, and $U = \{x \in (0,1) : x \text{ is irrational}\}$. Then $S \supset T$ and $S \supset U$, and the inclusion is strict in both cases. The unions of pairs of these sets are

$$S \cup T = S, \quad S \cup U = S, \quad \text{and} \quad T \cup U = S,$$

and their intersections are

$$S \cap T = T, \quad S \cap U = U, \quad \text{and} \quad T \cap U = \emptyset.$$

MC190405102: ZAKIA BIBI

MTH621:Gr

Time Left 23 c(s)

uly 2020

Question # 1

Marks: 1

subscribe w

ations

Repeat



subscri

sec(s)

2 AM. 06 July 2020

Total Marks: 1

Math Equations

Repeat



MTH621:Grand Quiz

Quiz Start Time: 06:42 AM

Question # 2 of 30 (Start time: 06:43:46 AM, 06 July 2020)

A sequence $\{s_n\}$ of real numbers is called a Cauchy sequence if for every $\varepsilon > 0$, there is an integer N such that $|s_n - s_m| < \varepsilon$ if $m, n -$

Theorem (**Cauchy's convergence criterion**): A sequence $\{s_n\}$ of real numbers converges **if and only if**, for every $\varepsilon > 0$, there is an integer N such that

$$|s_n - s_m| < \varepsilon \quad \text{if} \quad m, n \geq N.$$

Select the correct option

subscribe w s studio for n

- ○
- ○ $<$
- ● $\geqslant$
- ○ $\leqslant$

subs

Repeat



MC190405102: ZAKIA BIBI

Time Left 70 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 12 of 30 (Start time: 06:54:15 AM, 06 July 2020)

Total Marks: 1

The sum of a convergent series is ----.

Theorem: The sum of a convergent series is unique.

Proof: See Lecture.

subscribe w's studio

Select the correct option

Reload Math Equations

- ■ *unique*
- ○ *different*

Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=d910f088-4fc1-4ab3-a...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 83 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 9 of 30 (Start time: 06:51:22 AM, 06 July 2020) Total Marks: 1

Suppose that $a_n \geqslant 0$ *and* $b_n > 0$ *for* $n \geqslant k$. *Then* $\sum a_n = \infty$ *if* $\sum b_n = \infty$ *and* $\lim_{n\to\infty} \inf \frac{a_n}{b_n}$ ----.

Theorem: Suppose that $a_n \geq 0$ and $b_n > 0$ for $n \geq k$. Then

- $\sum a_n < \infty$ if $\sum b_n < \infty$ and $\limsup_{n\to\infty} a_n/b_n < \infty$.
- $\sum a_n = \infty$ if $\sum b_n = \infty$, and $\liminf_{n\to\infty} a_n/b_n > 0$.

subscribe w's studio for m

Select the correct option

O	$< \infty$
O	< 0
O	> 0
O	None of these


subscrib
Repeat

Repeat



Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=557d9e0e-5eed-46d9-...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

MC190405102: ZAKIA BIBI

Time Left 86 sec(s)

MTH621:Grand Quiz

Quiz Start Time: 06:42 AM, 06 July 2020

Question # 10 of 30 (Start time: 06:52:04 AM, 06 July 2020)

Total Marks: 1

$If\ \{s_n\}\ is\ ------,\ then\ \lim_{n\to\infty} s_n = \inf\{s_n\}.$

subscribe w's studio for more educationa

Select the correct option

- increasing
- decreasing
- nonincreasing
- nondecreasing

Theorem:

- If $\{s_n\}$ is nondecreasing, then $\lim_{n\to\infty} s_n = \sup\{s_n\}$.
- If $\{s_n\}$ is nonincreasing, then $\lim_{n\to\infty} s_n = \inf\{s_n\}$.

Repeat



Not secure | quiz.vu.edu.pk/QuizQuestion.aspx?ver=a556931b-c8ad-41d1-...

Apps Gmail YouTube Maps News Translate PTA | DRS Softek IT Consult: S... Other bookmarks

sec(s)

MTH621:Grand Quiz **Quiz Start Time: 06:42 AM, 06 July 2020**

Question # 1 of 30 (Start time: 06:42:49 AM, 06 July 2020) **Total Marks: 1**

The statement(s) true about the real number $4\sqrt{10}$ is(are)

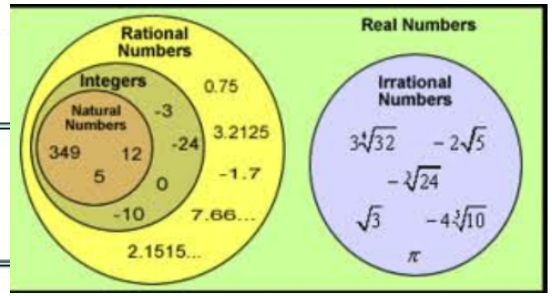
Select the correct option

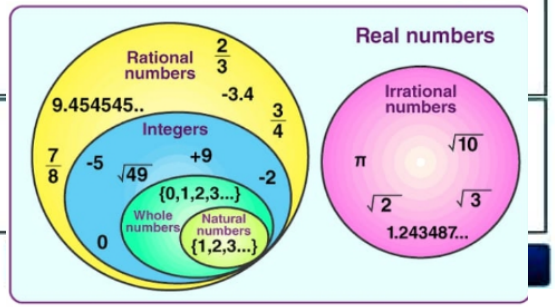
Example Product of a rational and irrational number is irrational.

ath Equations

subscribe w s studi

- ○ [illegible]
- ■ an irrational number.
- ○ the solution of $x^2 - 2x + 3$.
- ○ the solution of $x^2 - 4 = 0$.





Repeat

