PRINTABLE VERSION

Quiz 9

You scored 0 out of 100

Question 1

You did not answer the question.

Find the least upper bound (if it exists) and the greatest lower bound (if it exists) for the given set.

$(2, 5)$

a) lub and glb do not exist

b) lub = 5; glb = 2

c) lub = -5; glb = -2

d) lub = 2; glb = 5

e) lub = -2; glb = -5

Question 2

You did not answer the question.

Find the least upper bound (if it exists) and the greatest lower bound (if it exists) for the set $\{x : |x - 1| < 10\}$.

a) no lub ; glb = -9

b) lub = 9 ; glb = -11

c) lub and glb do not exist.

d) lub = 11 ; glb = -9

e) lub = 10 ; glb = -10

Question 3

You did not answer the question.

Find the least upper bound (if it exists) and the greatest lower bound (if it exists) for the set $\{ -5, -\frac{9}{2}, -\frac{13}{3}, -\frac{17}{4}, ...\}$.

a) lub = -4 ; glb = -5

b) lub and glb do not exist.

c) lub = -5 ; glb = -6

d) lub = -3 ; glb = -5

e) no lub ; glb = -5

Question 4

You did not answer the question.

Find the least upper bound (if it exists) and the greatest lower bound (if it exists) for the set $\{x : \ln(x) > 7\}$.

a) lub = e^7 ; glb = 0

b) no glb ; lub = e^7

c) no lub ; glb = e^7

d) lub and glb do not exist.

e) no lub ; glb = ln(7)

Question 5

You did not answer the question.

The first several terms of a sequence $\{a_n\}$ are given. Assume that the pattern continues as indicated and find an explicit formula for a_n.

$$20 , 0 , 20 , 0 , 20 , \ldots$$

a) $a_n = -10\,(-1)^n$

b) $a_n = -10\,(-1)^{n-1} - 10$

c) $a_n = -10\,(-1)^n + 10$

d) $a_n = 10\,(-1)^n + 10$

e) $a_n = -10\,(-1)^{n+1} - 10$

Question 6

You did not answer the question.

The first several terms of a sequence $\{a_n\}$ are given. Assume that the pattern continues as indicated and find an explicit formula for a_n.

$$-\frac{1}{(6)}, \frac{2}{(12)}, \frac{7}{(18)}, \frac{14}{(24)}, \frac{23}{(30)}, \ldots$$

a) $a_n = \dfrac{n^2+2}{(6n)}$

b) $a_n = \dfrac{n^2-2}{(6n)}$

c) $a_n = \dfrac{(n-1)^2-2}{(6n)}$

d) $a_n = \dfrac{(n+1)^2-2}{(6n)}$

e) $a_n = \dfrac{2n-2}{(6n)}$

Question 7

You did not answer the question.

Determine the boundedness and monotonicity of the sequence with a_n as indicated.

$$a_n = \frac{12}{n}$$

a) decreasing; bounded below by 1 and above by 12.

b) nondecreasing; bounded below by 1 and above by 12.

c) nonincreasing; bounded below by 0 and above by 12.

d) decreasing; bounded below by 0 and above by 12.

e) increasing; bounded below by 0 and above by 12.

Question 8

You did not answer the question.

Determine the boundedness and monotonicity of the sequence with a_n as indicated.

$$a_n = \frac{n^2}{\sqrt{n^3+7}}$$

a) increasing; bounded below by 0 and above by $\frac{1}{4}\sqrt{2}$

b) decreasing; bounded below by $\frac{1}{4}\sqrt{2}$ but not bounded above.

c) nonincreasing; bounded below by 0 and above by $\frac{1}{4}\sqrt{2}$

d) nondecreasing; bounded below by $\frac{1}{4}\sqrt{2}$ but not bounded above.

e) increasing; bounded below by $\frac{1}{4}\sqrt{2}$ but not bounded above.

Question 9

You did not answer the question.

Determine the boundedness and monotonicity of the sequence with a_n as indicated.

$$a_n = \frac{(n+9)^2}{n^2}$$

a) nonincreasing; bounded above by 100 but not bounded below.

b) nondecreasing; bounded below by 1 and above by 100

c) decreasing; bounded below by 1 but not bounded above.

d) decreasing; bounded below by 1 and above by 100

e) decreasing; bounded above by 100 but not bounded below.

Question 10

You did not answer the question.

Determine the boundedness and monotonicity of the sequence with a_n as indicated.

$$a_n = (-1)^{2n+1}\sqrt{n+9}$$

a) nonincreasing; bounded below by $-\sqrt{10}$ but not bounded above.

b) nondecreasing; bounded above by $-\sqrt{10}$ but not bounded below.

c) not monotonic; bounded above by $-\sqrt{10}$ but not bounded below.

d) decreasing; bounded above by $-\sqrt{10}$ but not bounded below.

e) increasing; bounded below by $-\sqrt{10}$ but not bounded above.

Question 11

You did not answer the question.

Give the first six terms of the sequence and then give the *n*th term.

$$a_1 = 1; \quad a_{n+1} = \frac{10}{n+1}\, a_n.$$

a) $a_1 = 1, a_2 = \frac{(10)}{(2)}, a_3 = \frac{(100)}{(6)}, a_4 = \frac{(900)}{(24)}, a_5 = \frac{(9900)}{(120)}, a_6 = \frac{(99900)}{(720)}; a_n = \frac{10^{n+1}}{n!}$

b) $a_1 = 1, a_2 = \frac{(10)}{(2)}, a_3 = \frac{(100)}{(6)}, a_4 = \frac{(1000)}{(24)}, a_5 = \frac{(10000)}{(120)}, a_6 = \frac{(100000)}{(720)}; a_n = \frac{10^{n+1}}{n!}$

c) $a_1 = 1, a_2 = \frac{(10)}{(2)}, a_3 = \frac{(100)}{(6)}, a_4 = \frac{(1000)}{(24)}, a_5 = \frac{(10000)}{(120)}, a_6 = \frac{(100000)}{(720)}; a_n = \frac{10^{n-1}}{n!}$

d) $a_1 = 1, a_2 = \frac{(10)}{(2)}, a_3 = \frac{(100)}{(6)}, a_4 = \frac{(1000)}{(24)}, a_5 = \frac{(10000)}{(120)}, a_6 = \frac{(100000)}{(720)}; a_n = \frac{10^n}{n!}$

e) $a_1 = \frac{(10)}{(1)}, a_2 = \frac{(100)}{(2)}, a_3 = \frac{(1000)}{(6)}, a_4 = \frac{(10000)}{(24)}, a_5 = \frac{(100000)}{(120)}, a_6 = \frac{(1000000)}{(720)}; a_n = \frac{10^n}{n!}$

Question 12

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\sqrt{n+9}$$

a) converges to 0

b) converges to -1

c) converges to $\sqrt{10}$

d) diverges

e) converges to 1

Question 13

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\frac{n+5}{n^2}$$

a) converges to 0

b) converges to 6

c) diverges

d) converges to -1

e) converges to 1

Question 14

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\frac{2^n}{4^n+4}$$

a) diverges

b) converges to 0

c) converges to 1

d) converges to -1

e) converges to 1/4

Question 15

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\frac{5n}{\sqrt{n^2+1}}$$

a) diverges

b) converges to 7

c) converges to 6

d) converges to 0

e) converges to 5

Question 16

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\ln\left(\frac{7n}{n+1}\right)$$

a) diverges

b) converges to 2

c) converges to ln(7/2)

d) converges to 1

e) converges to ln(7)

Question 17

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\frac{n^2}{\sqrt{6n^4+1}}$$

a) converges to $\frac{1}{6}\sqrt{6}$

b) converges to 1

c) diverges

d) converges to $\frac{1}{7}\sqrt{7}$

e) converges to $1/6$

Question 18

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$e^{\left(\frac{9}{\sqrt{n}}\right)}$$

a) converges to 0

b) converges to e^9

c) diverges

d) converges to 1

e) converges to e

Question 19

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$\frac{1}{n} - \frac{1}{n+7}$$

a) converges to $1/93$

b) converges to 0

c) converges to $7/8$

d) converges to 1

e) diverges

Question 20

You did not answer the question.

State whether the sequence converges and, if it does, find the limit.

$$a_1 = 1\ , \quad a_{n+1} = 11 - a_n$$

a) converges to 11

b) converges to 1

c) diverges

d) converges to 12

e) converges to 10