***SOLUTION*** ***Section* 3.1 – Sequences**

***Exercise***

Find the values of for 

***Solution***









***Exercise***

Find the values of for 

***Solution***









***Exercise***

Find the values of for 

***Solution***









***Exercise***

Find the values of for 

***Solution***









***Exercise***

Find the values of for 

***Solution***









***Exercise***

Write the first ten terms of the sequence 

***Solution***



















***Exercise***

Write the first ten terms of the sequence 

***Solution***





















***Exercise***

Write the first ten terms of the sequence 

***Solution***



















***Exercise***

Find a formula for the *n*th term of the sequence 

***Solution***



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Find a formula for the *n*th term of the sequence 

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***Exercise***

Find a formula for the *n*th term of the sequence 

***Solution***





***Exercise***

Find a formula for the *n*th term of the sequence 

***Solution***



***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





 The limit ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***







***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***









 The given series *converges*.

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***

 By the Sandwich Theorem for sequences



***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***







***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***











***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***

 L’Hôpital Rule





 The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***







By the Squeeze Theorem

 The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***

 does not exist (oscillates between −1 and 1)

The sequence ***diverges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges***

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Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***







The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***diverges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***diverges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges*** 

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***

 Let 

 Since 



The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***



 since 

The sequence ***converges***

***Exercise***

Determine if the sequence converge or diverge? Then find the limit of the convergent sequence.



***Solution***





The sequence ***converges***