Convergent and divergent sequences problems pdf

If you see this message, it means we're having trouble loading external resources on our website. If you're behind a web filter, make sure *.kastatic.org and *.kasandbox.org are unblocked. Show general notifications Show Mobile notifications Show all comments Hide all general alert notes I've just been informed that Lamar University must perform emergency work on the Internet here. For this reason, there is a high probability that the place will not be reachable on Saturday, October 24th from 8:00 - 22:00 central standard time. I'm sorry about the incompetence. PaulOctober 23, 2020 Mobile Notifications it seems that you are on a device with a narrow screen width (i.e. you are probably on a mobile phone). Due to the nature of mathematics on this page is the best view in landscape mode. If your device is not in landscape mode, many equations will flows from the side of the device (you should be able to view them), and some menu items will be cut off due to the narrow width of the screen. For 1 & 2 issues, calculate the first 3 terms in the order of the partial amount for a given series. \(\displaystyle\sum\limits_{n = 1}^\infty {n\{2^n}} \) Solution \(\displaystyle\sum\limits_{n = 3}^\infty {\frac{{2n}{{{{{n +2}}} \) Troubleshooting 3 & 4 assume that \(n\)th term in partial total order for series \(\displaystyle \sum\limits_{n = 0}^\infty {{a_n}} \) is listed below. Specify whether the \(\displaystyle\sum\limits_{n = 0}^\infty {{a_n}} \) series is convergent or different. If the series is convergent, specify a series value. \(\displaystyle {s_n} = \frac{{5 + 8{n^2}}}{{2 - 7{n^2}}}\) Solutions \

(\displaystyle {s_n} = \frac{{n^2}}{{5 + 2n}}\) Solutions For 5 & 6 issues show that the series is divergent. \(\displaystyle\sum\limits_{n = 0}^\infty {\frac{{{3n\,{{\bf{e}}}}}{{{{{{2} + 1}}} \) Solution \(\displaystyle\sum\limits_{n = 5}^^ ^\infty {\frac{{6 + 8n + 9{n^2}}}{{{{3 + 2n + {n^2}}}} \) Definition of convergence and divergence solution in the Nth series partial sum of the series and is given Sn = a1 + a2 + a3 + ... + an. If the sequence of these partial totals {Sn} convergates to L, then the sum of the series convergates to L. If {Sn} differs, then the sum of the series varies. Operations on convergent series If an = A and bn = B, then they also converge as indicated: can = cA (an + bn) = A + B (an - bn) = A - B Alphabetical list of convergence tests Absolute convergence If series |an| converging, then series and also converging. AC series test If for all n, an is positive, non-increasing (i.e. 0 < +1 < = an), and approaching zero, then the alternating series (-1)n an and (-1)n-1 and both converge. If the alternating series converging, then the rest of RN = S - SN (where S is the exact sum of infinite series and SN is the sum of the first N series terms) is bounded | RN| <= aN+1 Delete the first N conditions If N is a positive integer, then the series n=N+1 converging or both are diverging. Direct Comparison Test If 0 < = <= billion for all n greater than some positive integer N, the following rules apply: If the billion is converging, then it converges. If they diverge, then bn are different. Geometric series Convergence Geometric series is given rn = a + and r + and r2 + and r3 + ... If |r| < 1 the following geometric series converging with / (1 - r). If |r| >= 1 the above geometric series is different. Integral test If for all n > = 1, f(n) = and f is positive, continuous and decreasing then and either converge or both diverge. If the above series converging, then the rest of RN = S - SN (where S is the exact sum of infinite series and SN is the sum of the first N series terms) is bounded by 0< = RN < = (N..) f(x) dx. Limit Comparison Test If lim (n-->) (an/bn) = L, where, bn > 0 and L is final and positive, then series and billion either converge or both diverge. n-Term Test for Divergence If the sequence {an} is not directed to zero, then the series diverges. p-Series Convergence Series p is given 1/np = 1/1p + 1/2p + 1/3p + ... where p > 0 as defined. If p > 1, then the series will become closer. If 0 < p < = 1, then the series is breaking up. Ratio Test If the following rules apply to all n, n 0: Let L = lim (n -- >) | an+1 / and |. If L < 1, then the series and converging. If L > 1, then the series is breaking up. If L = 1, then test in inconclusive. Root test Let L = lim (n -- >) | |1/n. If L < 1, then the series and converging. If L > 1, then the series is breaking up. If L = 1, then test in inconclusive. Taylor Series Convergence If f has derivatives of all commands at the interval on which I focused on c, then the Taylor series converging as indicated: (1/n!) f(n)(c) (x - c)n = f(x) if and only if lim (n-->) Rn = 0 for all x in I. The remaining RN = S - SN of the Taylor series (where S is the exact sum of infinite series and SN is the sum of the first N series terms) is equal to (1/(n+1)!) f(n+1)(z) (x - c)n+1, where z is some constant between x and c. Learn from home Teachers Convergent sequences have the ultimate limit. Limit = 0.Limit = 1.Divergent sequencesDivergent do not have a finite limit. Limit = ∞.Oscillating sequencesSOscilation sequences are not convergent or different. Their conditions alternate from top to bottom or vice versa.1, 0, 3, 0, 5, 0, 7, ... Alternating sequencesChy sequences change the characters of its conditions. They can be: Convergent1, −1, 0.5, −0.5, 0.25, −0.25, 0.125, −0.125,.. Even and odd terms have a limit of 0.Divergent1, 1, 2, 4, 3, 9, 4, 16, 5, 25, ... Even and odd terms have a limit of +∞.Oscilating−1, 2, −3, 4 ,−5, ..., (−1)nStudy the following sequences and specify their type:1 a1= 3a3= 1a1000= 0.5012506253127.a1000 000 = 0.500001250006.Limit is 00..5.Convergent sequence.2 a1= 0.5a3= 0.6666a1000= 0.99900099001a1000 000 = 0.99999000001 Limit is 1.Convergent sequence. Need to find math Did you like the article? 3.00/5 - 2 votes loading... vote(s)Loading ...