

9.1 Sequences

Name:

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P 2. Write the first five terms of the sequence $a_n = \left(-\frac{2}{5}\right)^n$.

P 4. Write the first five terms of the sequence $a_n = \frac{3n}{n+4}$.

P 6. Write the first five terms of the sequence $a_n = 2 + \frac{2}{n} - \frac{1}{n^2}$.

P 8. Write the first five terms of the recursively defined sequence.

$$a_1 = 6, a_{k+1} = \frac{1}{3}a_k^2$$

P 10. Graph the first 10 terms of the sequence $a_n = \frac{10n}{n+1}$.

P 12. Graph the first 10 terms of the sequence $a_n = \frac{(-1)^n}{n}$.

P 14. Write the next two apparent terms of the sequence and obtain a formula for the n th term of the sequence

8, 13, 18, 23, 28, ...

P 16. Write the next two apparent terms of the sequence and obtain a formula for the n th term of the sequence

$$6, -2, \frac{2}{3}, -\frac{2}{9}, \dots$$

P 18. Simplify the ratio of factorials

$$\frac{n!}{(n+2)!}$$

P 20. Simplify the ratio of factorials

$$\frac{(2n+2)!}{(2n)!}$$

P 22. Find the limit (if possible) of the sequence

$$a_n = 6 + \frac{2}{n^2}$$

P 24. Find the limit (if possible) of the sequence

$$a_n = \cos \frac{2}{n}$$

P 30. Determine the convergence or divergence of the sequence with the n th term

$$a_n = 8 + \frac{5}{n}$$

P 32. Determine the convergence or divergence of the sequence with the n th term

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

P 34. Determine the convergence or divergence of the sequence with the n th term

$$a_n = \frac{\sqrt[3]{n}}{\sqrt[3]{n} + 1}$$

P 36. Determine the convergence or divergence of the sequence with the n th term

$$a_n = \frac{5^n}{3^n}$$

P 38. Determine the convergence or divergence of the sequence with the n th term

$$a_n = \frac{(n-2)!}{n!}$$

P 44. Determine the convergence or divergence of the sequence with the n th term

$$a_n = \frac{\cos \pi n}{n^2}$$

P 54. Determine whether the sequence $\{a_n\}$ is monotonic and whether it is bounded.

$$a_n = \frac{3n}{n+2}$$