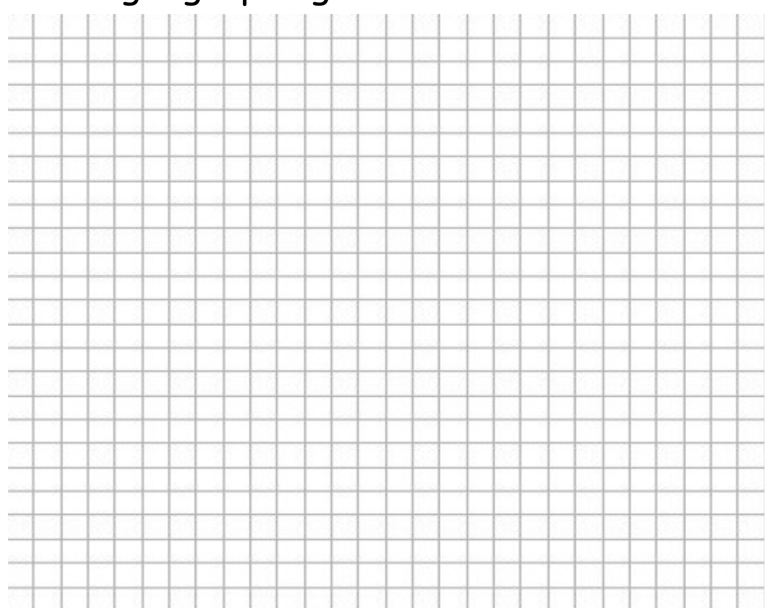
1. Find the first 5 terms of the sequence of partial sums.

   a. $1+\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\cdots$

   b. $\sum_{n=1}^{\infty}\frac{(-1)^{n+1}}{n!}$

2. Graph the first 10 terms of the sequence of partial sums given by $\sum_{n=0}^{\infty}\left(\frac{2}{3}\right)^{n}$ by hand and then check your result using a graphing calculator.



3. Verify that the infinite series converges.

a. $$\sum_{n=1}^{\infty} \frac{1}{n(n+2)}$$

b. $$\sum_{n=1}^{\infty} 2\left(-\frac{1}{2}\right)^{n}$$

4. Find the sum of the convergent series.

a. $8+6+\frac{9}{2}+\frac{27}{8}+\cdots$

b. $\sum_{n=1}^{\infty}\left[(0.7)^n+(0.9)^n\right]$

5. Write the repeating decimal $0.\overline{9}$ as a geometric series and write its sum as the ratio of two integers.

6. Determine the convergence or divergence of the series.

a. $\sum_{n=1}^{\infty} \frac{n+1}{2n-1}$

b. $\sum_{n=1}^{\infty} \ln \frac{1}{n}$

c. $\sum_{n=1}^{\infty} \frac{3^n}{n^3}$

d. $a_n = \left(-\frac{2}{3}\right)^n$

e. $a_n = ne^{-n/2}$

7. Use the Bounded Monotonic Sequences theorem to show that the sequence with the given *n*th term converges and use a graphing calculator to graph the first 10 terms of the sequence and find its limit.

$$a_n = 4 + \frac{1}{2^n}$$