3. In each of the following, indicate all possible completions of the sentence that will make it into a true statement by putting a ✗ in the corresponding ☐s.

a. $\left\{\frac{1}{n}\right\}_{n=1}^{\infty} = \left\{1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \cdots, \frac{1}{n}, \cdots\right\}$ is

☒ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☐ a divergent series ☐ none of these

b. $\sum_{n=1}^{\infty} \frac{1}{2^{n-1}} = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \cdots + \frac{1}{2^{n-1}} + \cdots$ is

☐ a convergent sequence ☐ a divergent sequence

☒ a convergent series ☐ a divergent series ☐ none of these

c. $\sum_{n=1}^{\infty} 1 = 1 + 1 + 1 + 1 + \cdots + 1 + \cdots$ is

☐ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☒ a divergent series ☐ none of these

d. $\{(-1)^{n-1}\}_{n=1}^{\infty} = \{1, -1, 1, -1, \cdots, (-1)^{n-1}, \cdots\}$ is

☐ a convergent sequence ☒ a divergent sequence

☐ a convergent series ☐ a divergent series ☐ none of these

e. $\sum_{n=1}^{\infty} (-1)^{n-1} = 1 - 1 + 1 - 1 + \cdots + (-1)^{n-1} + \cdots$ is

☐ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☒ a divergent series ☐ none of these

f. $\{1\}_{n=1}^{\infty} = \{1, 1, 1, 1, \cdots, 1, \cdots\}$ is

☒ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☐ a divergent series ☐ none of these

g. $\sum_{n=1}^{\infty} \frac{1}{n} = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots + \frac{1}{n} + \cdots$ is

☐ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☒ a divergent series ☐ none of these

h. $\left\{\frac{1}{2^{n-1}}\right\}_{n=1}^{\infty} = \left\{1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \cdots, \frac{1}{2^{n-1}}, \cdots\right\}$ is

☒ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☐ a divergent series ☐ none of these

i. Mark only "none of these" in this part.

☐ a convergent sequence ☐ a divergent sequence

☐ a convergent series ☐ a divergent series ☒ none of these