Problems for Gateway #1: Identifying the General Term of a Series

1. The general term of the series: $2 + \dfrac{2}{9} + \dfrac{2}{81} + \dfrac{2}{243} + \ldots$ is

(a) $\left(\dfrac{2}{9}\right)^n$ (b) $\dfrac{2n}{9}$

(c) $\dfrac{2}{9^n}$ (d) $\dfrac{n+2}{9n}$

2. The general term of the series: $1 + \dfrac{1}{4} + \dfrac{1}{9} + \dfrac{1}{16} + \dfrac{1}{25} + \ldots$ is:

(a) $\dfrac{1}{n^2}$ (b) $\dfrac{1}{n!}$

(c) $\dfrac{1}{2n-3}$ (d) $\left(\dfrac{1}{4}\right)^n$

3. The general term of the series: $1 + 2 + 4 + 8 + 16 + \ldots$ is:

(a) $2n$ (b) $n + 2$

(c) $\left(\dfrac{1}{2}\right)^n$ (d) 2^n

4. The general term of the series: $3 + 1.5 + 1 + 0.75 + \ldots$ is:

(a) $\left(\dfrac{3}{2}\right)^n$ (b) $\dfrac{3}{n}$

(c) $\dfrac{3n}{2}$ (d) $\dfrac{3}{2^n}$

5. The general term of the series: $1 + \dfrac{1}{3} + \dfrac{1}{5} + \dfrac{1}{7} + \ldots$ is:

(a) $\dfrac{1}{3^n}$

(b) $\dfrac{1}{3n+1}$

(c) $\dfrac{1}{2n-1}$

(d) $\dfrac{n-1}{2n+1}$

6. The general term of the series: $0.1 + 0.02 + 0.003 + 0.0004 + \ldots$ is

(a) $\dfrac{n}{10^n}$

(b) $\dfrac{n^2}{10}$

(c) $\dfrac{10^n}{2n+1}$

(d) $\dfrac{n-1}{2n+1}$

7. The general term of the series: $1 + 1/4 + 1/9 + 1/16 + 1/25 + \ldots$ is:

(a) $\dfrac{n+1}{n^2}$

(b) n^2

(c) $\dfrac{1}{n^2}$

(d) $\dfrac{1}{1+2^n}$

8. The general term of the series: $1 + 27 + 3125 + \ldots$ is:

(a) n^n

(b) $(2n)^{2n}$

(c) $(2n-1)^{2n-1}$

(d) $2n^n$

9. The general term of the series: $1.5 + 0.75 + 0.375 + \ldots$ is:

(a) $\left(\tfrac{3}{2}\right)^n$

(b) $\dfrac{3}{n}$

(c) $\dfrac{3n}{2}$

(d) $\dfrac{3}{2^n}$

10. The general term of the series: $\dfrac{1}{4} + \dfrac{1}{7} + \dfrac{1}{10} + \dfrac{1}{13} + \dots$ is:

(a) $\dfrac{1}{3^n}$

(b) $\dfrac{1}{3n+1}$

(c) $\dfrac{1}{2n-1}$

(d) $\dfrac{n-1}{2n+1}$

Answers

| 1. | C | 2. | A | 3. | D | 4. | B | 5. | C | 6. | A |
| 7. | C | 8. | C | 9. | D | 10. | B | | | | |