Find an explicit rule for the nth term of the arithmetic sequence.

22) $a_{17} = -97$, $a_{19} = -283$

$a_n = 1391 - 93(n-1)$

23) 19, 27, 35, 43, ...

A) $a_n = 19 - 8(n-1)$ B) $a_n = 19 - 8(n)$ C) $a_n = 19 + 8(n-1)$ D) $a_n = 19 + 8(n)$

Find the sum of the partial geometric series.

24) $3 + \frac{3}{2} + \frac{3}{4} + \frac{3}{8} + \frac{3}{16}$

A) 93 B) $\frac{93}{16}$ C) $\frac{3}{4}$ D) $\frac{3}{16}$

25) $1 + -3 + 9 + -27 + 81$

A) -61 B) -121 C) 61 D) 121

26) Write the first 5 terms of the sequence. Assume n =1

$a_n = \frac{5n}{(2n-1)!}$

$\frac{5}{1}, \frac{10}{6}, \frac{15}{120}, \frac{20}{5040}, \frac{25}{362880}$

Expand

27. $(2x + 1)^4$

7) $5 - 25 + 125 - 625 + \ldots$

A) $\sum_{n=0}^{\infty} 5 \cdot 5^{n+1}$ B) $\sum_{n=0}^{\infty} 5(-5)^{n}$ C) $\sum_{n=0}^{\infty} 5 \cdot 5^{n}$ D) $\sum_{n=0}^{\infty} 5(-5)^{n+1}$

8) Use sigma notation to write the sum

$1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{1}{16} - , \ldots = \sum_{n=1}^{\infty} 1\left(-\frac{1}{2}\right)^{n-1}$

Determine whether the infinite geometric series converges. If the series converges, determine the sum.

9) $3 + 6 + 12 + 24 + \ldots$

A) Diverges B) Converges; 93 C) Converges; 21 D) Converges; 45

10) $60 - 12 + \frac{12}{5} - \frac{12}{25} + \ldots$

A) Converges; 75 B) Diverges C) Converges; 6240 D) Converges; 50

Express the rational number as a fraction of integers. Show all your work.

11) $0.6666\ldots = \frac{6}{10} + \frac{6}{100} + \frac{6}{1000} + \ldots$

$$S = \frac{\frac{6}{10}}{1 - \frac{1}{10}} = \frac{\frac{6}{10}}{\frac{9}{10}} = \frac{6}{9} = \frac{2}{3}$$

Find an explicit rule for the nth term of the geometric sequence.

12) The second and fifth terms of a geometric sequence are -36 and 2304, respectively.

$a_n = 9(-4)^{n-1}$

13) $-1, -3, -9, -27, \ldots$

A) $a_n = 3 \cdot -1^{n+1}$ B) $a_n = 3 \cdot -1^{n}$ C) $a_n = -1 \cdot 3^{n}$ D) $a_n = -1 \cdot 3^{n-1}$