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

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

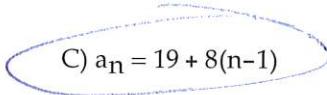$$a_n = 1391 - 93(n-1)$$

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) $a_n = 19 + 8(n)$

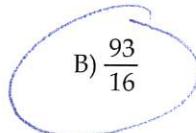**Find the sum of the partial geometric series.**

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

A) 93   B) $\dfrac{93}{16}$ C) $\dfrac{3}{4}$ D) $\dfrac{3}{16}$
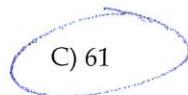
25) $1 + -3 + 9 + -27 + 81$

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. $(2x + 1)^4$

4

7) $5 - 25 + 125 - 625 + ...$

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) $\sum_{n=0}^{\infty} 5(-5)^{n+1}$

(B is circled)

8) Use sigma notation to write the sum

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

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

9) $3 + 6 + 12 + 24 + ...$

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

(A is circled)

10) $60 - 12 + \dfrac{12}{5} - \dfrac{12}{25} + ...$

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

(D is circled)

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

11) $0.6666... \;=\; \dfrac{6}{10} + \dfrac{6}{100} + \dfrac{6}{1000} + ...$

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

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) $-1, -3, -9, -27, ...$

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

(D is circled)