Sequences and series 1

1. Write down the first five terms of the sequence whose nth term is

(a) $u_n = 2n-1$ .....

(b) $u_n = 2^n$ .....

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

2. Write down the first five terms of the series :

(a) $\sum_{r=1}^{n} 3r-1$

.....

(b) $\sum_{r=1}^{n} (r+1)(r+2)$

.....

(c) $\sum_{r=1}^{n} 2^r - r$

.....

(d) $\sum_{r=4}^{n} 3r+1$

.....

3. Write down all the terms in the series and hence evaluate :

(a) $\sum_{r=1}^{6} 2r+1$

.....

(b) $\sum_{r=3}^{7} r^2$ .....

(c) $\sum_{r=7}^{10} \left(\dfrac{2r-1}{2r+1}\right)$ .....

4. Write the following series using sigma notation

(a) 1 + 8 + 27 + 64 + 125

.....

(b) 2 + 4 + 6 + 8 + ... + 20

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(c) - 4 - 1 + 2 + 5 + ... + 17

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(d) 8 + 4 + 2 + 1 + ½ + ...

.....

5. Write down the 5th term in the series $\sum_{r=3}^{14} 2^r$

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6. Write down the 8th term in the series $\sum_{r=0}^{10} \frac{1}{(r+1)(r+2)}$

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7. Evaluate the following $\sum_{r=0}^{5} r(-1)^{r+1}$

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