Finite geometric sums

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Find the sum of eight terms of $5, 10, 20, \ldots$. [2 marks]

$5(2^8 - 1) = 1275$.

Answer: 1275.

2. Find $16 + 8 + 4 + 2 + 1 + 1/2$. [2 marks]

$16(1 - 2^{-6})/(1 - 1/2) = 63/2$.

Answer: 63/2.

3. Find the seven-term sum when $a = 4, r = 1$. [2 marks]

Seven equal terms total $7(4) = 28$.

Answer: 28.

4. Find $2 - 6 + 18 - 54 + 162$. [2 marks]

$2[1 - (-3)^5]/4 = 122$.

Answer: 122.

5. For $a = 7, r = 2$, find the least n with $S_n > 1000$. [2 marks]

$S_7 = 889$ and $S_8 = 1785$.

Answer: 8.

6. Find the balance immediately after three end-of-year AUD 500 deposits earning 4% yearly. [3 marks]

$500[(1.04)^2 + 1.04 + 1] = 1560.8$.

Answer: 1560.80.