The University of New South Wales
School of Mathematics and Statistics

Mathematics Drop–in Centre

GEOMETRIC SERIES

A **geometric series** (or *o r pro r on*, GP for short) is a sum of terms in which each and every number is a fixed ratio times the previous number. For example, in the sum

$$4 + 12 + 36 + 108 + 324 + 972 + 2916 \qquad (\ )$$

every term is 3 times the previous term. However a series like

$$5 + 10 + 20 + 30 + 90$$

is not a geometric series because the second term is 2 times the first and the third is 2 times the second, but the fourth is $1\frac{1}{2}$ times the third (and the fifth is 3 times the fourth). A geometric series may have more, or fewer, terms than example ( ). The general geometric series is