

Sequences and Series – LAMC Intermediate Group (1/19/14)

This week and next week, we will be investigating properties of sequences and series. To begin, we will try to identify the general pattern of several sequences given here. Afterwards, we will introduce key concepts in the study of sequences and series and attempt to apply them to these sequences.

Sequences and Series – Handout 1

1/19/14

Sequence	Space for Work	$a_n =$
$1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \dots$		
$1, 1, 2, 3, 5, 8, 13, \dots$		
$-1, 1, -1, 1, -1, 1, \dots$		
$\frac{1}{3}, 1, \frac{1}{9}, 2, \frac{1}{27}, 3, \frac{1}{81}, 4, \dots$		

$1, -1, 1, -1, 1, -1, \dots$		
$1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots$		
$1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, \frac{1}{36}, \dots$		
$2, 4, 8, 16, 32, \dots$		
$\sqrt{2}, \sqrt{2+\sqrt{2}}, \sqrt{2+\sqrt{2+\sqrt{2}}}, \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2}}}}, \dots$		
$1, \frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \frac{16}{81}, \frac{32}{243}, \dots$		

$5, 5, 5, 5, 5, \dots$		
$4, 6, 9, \frac{27}{2}, \frac{81}{4}, \frac{243}{8}, \dots$		
$\frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \frac{1}{20}, \frac{1}{30}, \frac{1}{42}, \dots$		
$\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{6}}, \frac{1}{\sqrt{12}}, \frac{1}{\sqrt{20}}, \frac{1}{\sqrt{30}}, \frac{1}{\sqrt{42}}, \dots$		
$\frac{3}{2}, \frac{6}{8}, \frac{11}{18}, \frac{18}{32}, \frac{27}{50}, \frac{38}{72}, \frac{51}{98}, \dots$		
$3, 2, 3.1, \frac{9}{4}, 3.14, \frac{64}{27}, 3.141, \frac{625}{256}, \dots$		

$\frac{1}{2}, \frac{2}{6}, \frac{4}{24}, \frac{8}{120}, \frac{16}{720}, \dots$		
$2, 3, 5, 7, 9, 11, 13, 17, 19, \dots$		
$10, \frac{32}{3}, \frac{34}{3}, \frac{36}{3}, \frac{38}{3}, \dots$		
$1, -\frac{1}{3}, \frac{1}{9}, -\frac{1}{27}, \dots$		