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

Now it's time to discuss important concepts involved with sequences. Write, in your own words, the meaning of the following:

Monotone (increasing, decreasing):

Least Upper Bound:

Greatest Lower Bound:

Cluster Point:

Convergent:

Sequence	monotone	l.u.b.	g.l.b.	cluster point(s)	convergent
$1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \cdots$					
$1, 1, 2, 3, 5, 8, 13, \cdots$					
$-1, 1, -1, 1, -1, 1, \cdots$					

Sequence	monotone	l.u.b.	g.l.b.	cluster point(s)	convergent
$\frac{1}{3}, 1, \frac{1}{9}, 2, \frac{1}{27}, 3, \frac{1}{81}, 4, \cdots$					
$1, -1, 1, -1, 1, -1, \cdots$					
$1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \ldots$					
$1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, \frac{1}{36}, \ldots$					
$2, 4, 8, 16, 32, \cdots$					
$\sqrt{2}, \sqrt{2+\sqrt{2}}, \sqrt{2+\sqrt{2+\sqrt{2}}}, \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2}}}}, \cdots$					

Sequence	monotone	l.u.b.	g.l.b.	cluster point(s)	convergent
$1, \frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \frac{16}{81}, \frac{32}{243}, \ldots$					
$5, 5, 5, 5, 5, \ldots$					
$4, 6, 9, \frac{27}{2}, \frac{81}{4}, \frac{243}{8}, \ldots$					
$\frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \frac{1}{20}, \frac{1}{30}, \frac{1}{42}, \ldots$					
$\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{6}}, \frac{1}{\sqrt{12}}, \frac{1}{\sqrt{20}}, \frac{1}{\sqrt{30}}, \frac{1}{\sqrt{42}}, \ldots$					
$\frac{3}{2}, \frac{6}{8}, \frac{11}{18}, \frac{18}{32}, \frac{27}{50}, \frac{38}{72}, \frac{51}{98}, \ldots$					

Sequence	monotone	l.u.b.	g.l.b.	cluster point(s)	convergent
$3, 2, 3.1, \frac{9}{4}, 3.14, \frac{64}{27}, 3.141, \frac{625}{256}, \cdots$					
$\frac{1}{2}, \frac{2}{6}, \frac{4}{24}, \frac{8}{120}, \frac{16}{720}, \ldots$					
$2, 3, 5, 7, 9, 11, 13, 17, 19, \cdots$					
$10, \frac{32}{3}, \frac{34}{3}, \frac{36}{3}, \frac{38}{3}, \ldots$					
$1, -\frac{1}{3}, \frac{1}{9}, -\frac{1}{27}, \ldots$					