

Solutions to Week in Review 8

1. a.) Diverges to  $\infty$   
b.) Converges to  $\ln \frac{1}{3}$   
c.) Converges to 0  
d.) Diverges by oscillation  
e.) Converges to 0
2. a.)  $\frac{2}{5}$   
b.)  $\frac{3 - \sqrt{5}}{2}$
3. a.) Decreasing  
b.) Decreasing  
c.) Decreasing  
d.) Non monotonic
4.  $\sum_{n=1}^{\infty} \frac{1}{n}$  diverges and  $\sum_{n=1}^{\infty} \frac{1}{n^2}$  converges. The whole point is how fast the terms are going to zero.
5. 5.5
6. a.)  $\frac{1}{6}$   
b.) diverges to  $-\infty$   
c.)  $\frac{3}{4}$   
d.)  $\frac{7}{3}$   
e.)  $-10$   
f.)  $\frac{10}{3}$   
g.)  $\frac{4}{45}$   
h.) Diverges  
i.)  $\frac{20}{3}$