

Math 111-002  
Assignment # 9

Please remember that the assignment consists of only a sample of the kind of questions you are supposed to be able to do. It is **not** a safe practice to just do the assignment, and that is why there is a list of “suggested practice problems” in the course web page.

1. Determine whether the sequence converges or diverges. If it converges, find the limit.

(a)  $a_n = \frac{3 + 5n^2}{4 + n}$

(b)  $a_n = 8.3 + (0.715)^n$

(c)  $a_n = \frac{7^n}{100 + 8^n}$

(d)  $a_n = \frac{7^n}{n + 8^n}$

(e)  $a_n = \cos\left(\frac{n\pi}{n+2}\right)$

(f)  $a_n = \ln(n+2) - \ln n$

(g)  $a_n = n^{1/n}$

(h)  $a_n = \cos n\pi$

(i)  $a_n = \frac{(\ln n)^2}{n}$

(j)  $a_n = \arctan(\ln n)$

(k)  $a_n = \left(1 + \frac{3}{n}\right)^n$