American Public University

**Assignment 2**

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#1) Prove the following by using: a direct argument and definition 2.6.

Let any positive be given. We need to find a number N so that every term in the sequence on and after the Nth term is closer to 3/2 than , that is, so that

for n=N, n=N+1, n=N+2, ... ()

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I’m stuck. I don’t know where to go from here.

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#2) Prove the following by using: a direct argument; exercise 2.4.1; and Theorems 2.14, 2.15, 2.16, and/or 2.17.

I’m stuck. I don’t know where to go from here.

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#3) Prove the following by using: a direct argument; and definition 2.9.

If M is any positive number we need to find some point in the sequence after which all terms exceed M. Thus we need to consider the inequality ()

Since

as long as n M+1 this will be true. Thus take any integer N M + 1 and it will be true that

for all n N.