**Mth621 spring 2020**

**Assignment 1**

**Learn Smartly**

**CYBERIAN.PK**

**Question No.1.**

 **Let S and T be non empty set of real numbers and define**

**** **Show that if S and T are bounded, then**

 **And**

 ****

**Solution:**

 **First we prove that**

 ****

**Given, **

**As set ‘S’ is bounded set. By completeness property, it has supremum belong to R.**

**Suppose that,**

****

****

**As**

****

**T ‘is bounded set .By completeness property, it has inf belongs to R.**

****

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****

****

**Now,**

**Adding equations**

**now**

****

**Cyberian.pk**

****

**Again,**

****

****

**as**

****

****

**Again**

****

** Is g .l .b. of ‘T’**

****

**For some, **

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****

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****

**Put these values**

****

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****

**Hence,**

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**Now we prove that,**

****

**Given, **

**As set ‘S’ is bounded set. By completeness property, it has an infimum belongs to R.**

**Suppose that,**

****

****

****

**T ‘is bounded set .By completeness property, it has supremum belongs to R.**

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**Adding equations**

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****

**Again**

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**Now**

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**Put these**

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**So,**

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**Question No.2.**

 **For what integer ‘n’ is**

****

**Prove your answer by induction.**

**Solution:**

**Let, **

**Put these values  in equation no. 1**

****

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**Now,**

**We take,**

****

**So,**

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**For check**

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**Put the value of **

**So,**

**Cyberian.pk**

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**The given statement is true for all negative values.**

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