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so many fake sites. this is the first one which worked! Many thanks

SOLUTION CHAPTER 2.2  
INTRODUCTION TO REAL ANALYSIS  
BARTLE AND SHERBERT

Definition: (Absolute value)

Absolute value of a real number 'a' is denoted by  $|a|$  and is defined as

$$|a| = \begin{cases} -a & \text{if } a < 0 \\ a & \text{if } a \geq 0 \end{cases}$$

there are few properties of absolute value which can be proved very easily here I'll just write them I won't prove them you can ask me if you are not able to prove them you can mail me [ssshuhda112@gmail.com](mailto:ssshuhda112@gmail.com)

Property 1

$$|a| = \max(a, -a)$$

Property 3

$$\text{sqr}(|a|) = \text{sqr}(a) = \text{sqr}(-a)$$

Property 2

$$|a+b| \leq |a| + |b|$$

Property 4

$$|a| = |-a|$$

Now we have some basic idea about absolute value, we can now solve the questions....

**Geometrical meaning of  $|a|$  :-**

$|a|$  is distance of real number 'a' from 0.

And  $|a-b|$  is distance between 'a' and 'b'

Q1(a):- To show that  $|a| = \sqrt{\text{sqr}(a)}$

Proof:-

Case 1 when  $a \geq 0$  we have on the L.H.S  $|a| = a$

$$\Rightarrow \text{sqr}(|a|) = \text{sqr}(a)$$

$$\Rightarrow |a| = \sqrt{\text{sqr}(a)} \quad (\text{taking square root})$$

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