22) Let f be a function from $\mathbb{N}$ into 2^N.

Let $D = \{ n \in \mathbb{N} : n \notin f(n) \}$. D is a subset of $\mathbb{N}$, so $D \in 2^N$

Let n be an arbitrary natural number.

Case 1) $n \in f(n)$. Because $D = \{ n \in \mathbb{N} : n \notin f(n) \} \Rightarrow n \notin D \Rightarrow D \neq f(n)$

Case 2) $n \notin f(n)$. D is $\mathbb{N}$, but not contained in image set. $\Rightarrow n \in D$.

Since $n \in D$ & $n \notin f(n)$, $\Rightarrow D \neq f(n)$

Since there is no integer such that $f(n) = D$. $\Rightarrow$ D is not in range of $f \Rightarrow f$ is not onto.

$f : \mathbb{N} \to 2^N$. 2^N is nonempty, 2^N is not countable $\boxtimes$.

24) Let there exist (a,b) such that $a \neq b$ and the interval is finite
Because $a \neq b$, there exists a number c within a & b by axiom
Thus, there exists d between a & c, and $\exists$ 'e' between c & d
This happens an infinite amount of times.
$\Rightarrow$ a nondegenerative interval of real numbers fails to be finite $\boxtimes$

26) With Cantor Schröder Bernstein, it suffices to find an injection $\mathbb{R} \times \mathbb{R} \to \mathbb{R}$, the equivalent of finding an injection $(0,1) \times (0,1) \to \mathbb{R}$ as $\mathbb{R}$ is equipotent to $(0,1)$

If $r \in (0,1)$, let $0.r_1 r_2 \ldots r_n$ be its specific decimal.

To a pair $\langle r, s \rangle \in (0,1) \times (0,1)$, let $0.r_1 r_2 \ldots r_n s_n \in (0,1)$.

The decimal development cannot be 9, meaning it being impossible to get r & s, meaning the mapping is injective