Specifically say where you are using Archimedean's Property (or one of it's corollaries) when you use it. Below is a list of the versions of Archimedean's Property that we showed in class.
Thm AP. (Archimedean's Property) $(\forall b \in \mathbb{R})\ (\forall a \in \mathbb{R}^{>0})\ (\exists n \in \mathbb{N})\ [b < na]$
Cor. 1. $(\forall x \in \mathbb{R})\ (\exists n \in \mathbb{N})\ [x < n]$
Cor. 2. $(\forall \varepsilon > 0)\ (\exists n \in \mathbb{N})\ \left[\frac{1}{n} < \varepsilon\right]$
Cor. 3. $(\forall z \in \mathbb{R}^{>0})\ (\exists n \in \mathbb{N})\ [n - 1 \leq z < n]$

Variant of book's ER 2.4.2

§2.4
BS4p44

Let

$$D = \left\{ \frac{1}{j} - \frac{1}{k} : j, k \in \mathbb{N} \right\} .$$

1a. Conjecture the sup D.

1b. Prove your conjecture in **1a** is true.

2a. Conjecture the inf D.

2b. Prove your conjecture in **2a** is true.

. . . . . .