Math 304
Homework 6 Solutions

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D.3 a) You should use $\{s \in \mathbb{R} \mid s > 0 \text{ and } s^2 > a\}$.

(b) By the infimum property of $\mathbb{R}$ we have to show that T is non-empty and has a lower bound. To show that it's non-empty: Either $a > 1$ or $a \leq 1$. If $a > 1$, then $a^2 > a$, so $a \in T$. If $a \leq 1$, then $2^2 > a$ so $2 \in T$.

To show that it has a lower bound: One of the conditions for s being in T is that $s > 0$, so 0 is a lower bound.

D.4 Suppose that a set S has two infima x and y. Then both x and y are lower bounds of S, and both x and y are less than or equal to all lower bounds of S. Therefore, $x \leq y$ and $y \leq x$. Therefore, $x = y$.