Check your understanding

38. Continuing the previous example, suppose we want to set up a triple integral over the region defined by the inequalities $x^2 \leq y \leq 1$ and $0 \leq z \leq 1 - y$ in the order $dx\, dy\, dz$. What are the x limits?

(a) $-\infty < x \leq \sqrt{y}$.

(b) $0 \leq x \leq \sqrt{y}$.

(c) $-\sqrt{y} \leq x \leq \sqrt{y}$.

(d) $-\infty < x < \infty$.

Answer: (c).

Explanation: The only inequality we know involving x is $x^2 \leq y$. This is equivalent to $-\sqrt{y} \leq x \leq \sqrt{y}$, and y is fixed.