

12.1, number 19: Describe the set of points in 3-space whose coordinates satisfy

(a) $x^2 + y^2 + z^2 \leq 1$

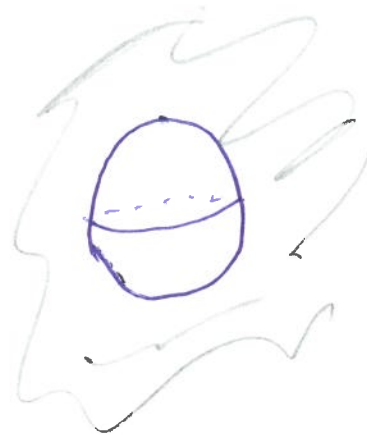
Answer: The set of points in 3-space which satisfy $x^2 + y^2 + z^2 \leq 1$ consists of everything on or inside the sphere of radius one with center the origin.

(b) $x^2 + y^2 + z^2 > 1$.

Answer: The set of points in 3-space which satisfy $x^2 + y^2 + z^2 > 1$ consists of everything outside the sphere of radius one with center the origin.



The answer
to (a) is
everything in
or on the sphere



The answer to (b)
is every thing
outside the sphere