Quiz 3 MTH 335 Fall 2024

$$\frac{dy}{dx} = \sqrt{17 - x^2 - y^2}$$

↓ exists when

$\sqrt{17 - x^2 - y^2}$ exists and is real

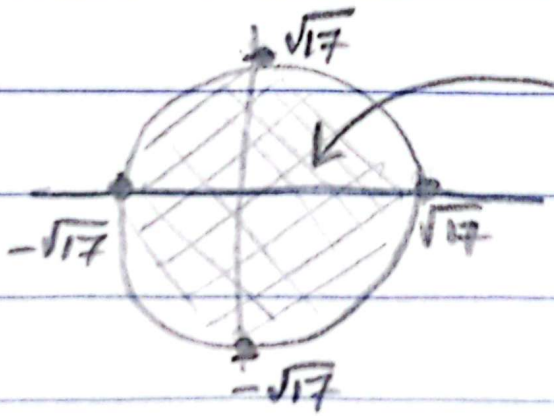
↓ requires

$17 - x^2 - y^2 \geq 0$

↓ equivalent to (by algebra)

$x^2 + y^2 \leq 17$

recall $x^2 + y^2 = (\sqrt{17})^2$ is eqt of circle of radius $\sqrt{17}$



soln lives in the interior of the circle depicted!