

Quiz 2 MTH 335 Fall 2024

$$\begin{cases} (2x+1)y' + xy = \sin(x) \\ y(3) = -2 \end{cases}$$

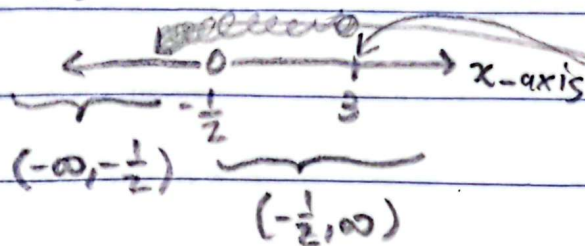
rewrite as

$$y' + \frac{x}{2x+1}y = \frac{\sin(x)}{2x+1}$$

consider $2x+1=0 \rightarrow x = -\frac{1}{2}$

place where denominator = 0
which means a place where
the function not continuous,
see Theorem 1.2.9

This means solution intervals are



For our particular problem, the data "y(3) = -2"
shows the soln will exist on $(-\frac{1}{2}, \infty)$.

