

Quiz 3 MTH335 Fall 2026

Sunday, September 13, 2026

9:09 AM

Classify equilibrium solns of

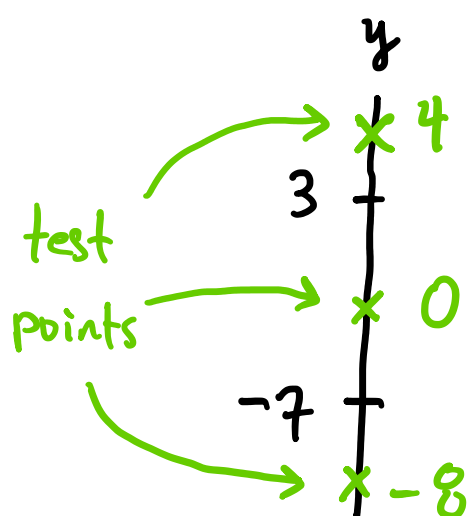
$$y' = y^2 + 4y - 21$$

Soln: We must solve for critical points, i.e. when $y' = 0$:

$$0 = y^2 + 4y - 21$$

$$0 = (y+7)(y-3)$$

$$y = 3, -7 \leftarrow (\text{must classify both!})$$



test point y	$y' = y^2 + 4y - 21$
4	$4^2 + 4(4) - 21 > 0$
0	$0^2 + 0 - 21 < 0$
-8	$(-8)^2 + 4(-8) - 21 = 64 - 32 - 21 = 32 - 21 > 0$

From our calculation, we obtain the phase portrait

