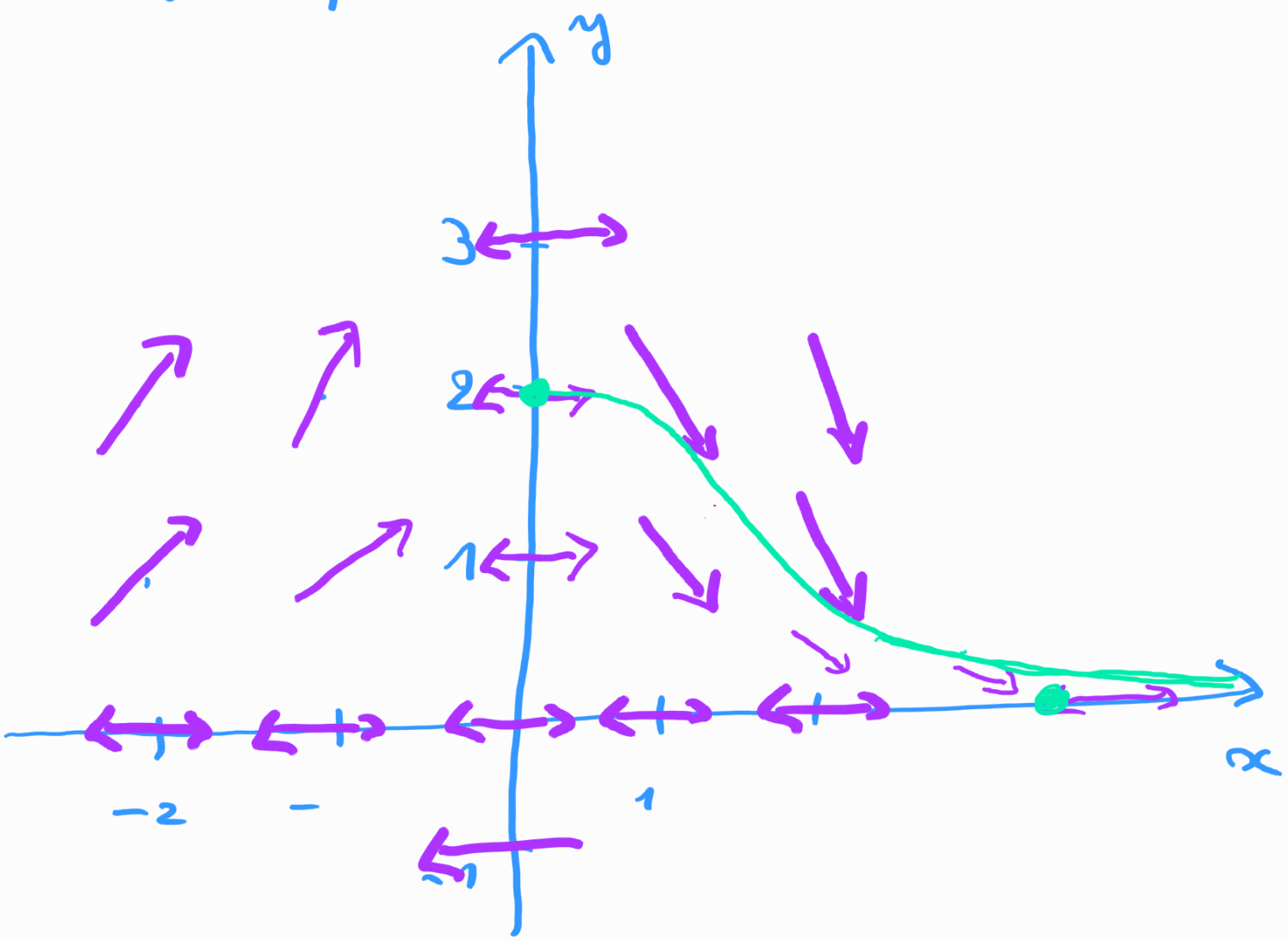
Ex 1 $y' = xy$

1) $\phi(x,y) = -xy$ = slope of the tangent field on a point (x,y)



$\phi(-2,0) = 0 = \phi(-1,0) = \phi(0,0) = \phi(1,0)$
$= \phi(2,0)$

2) $y(x) = 0$ is a solution

$y'(x) = 0 = -xy(x)$ OK

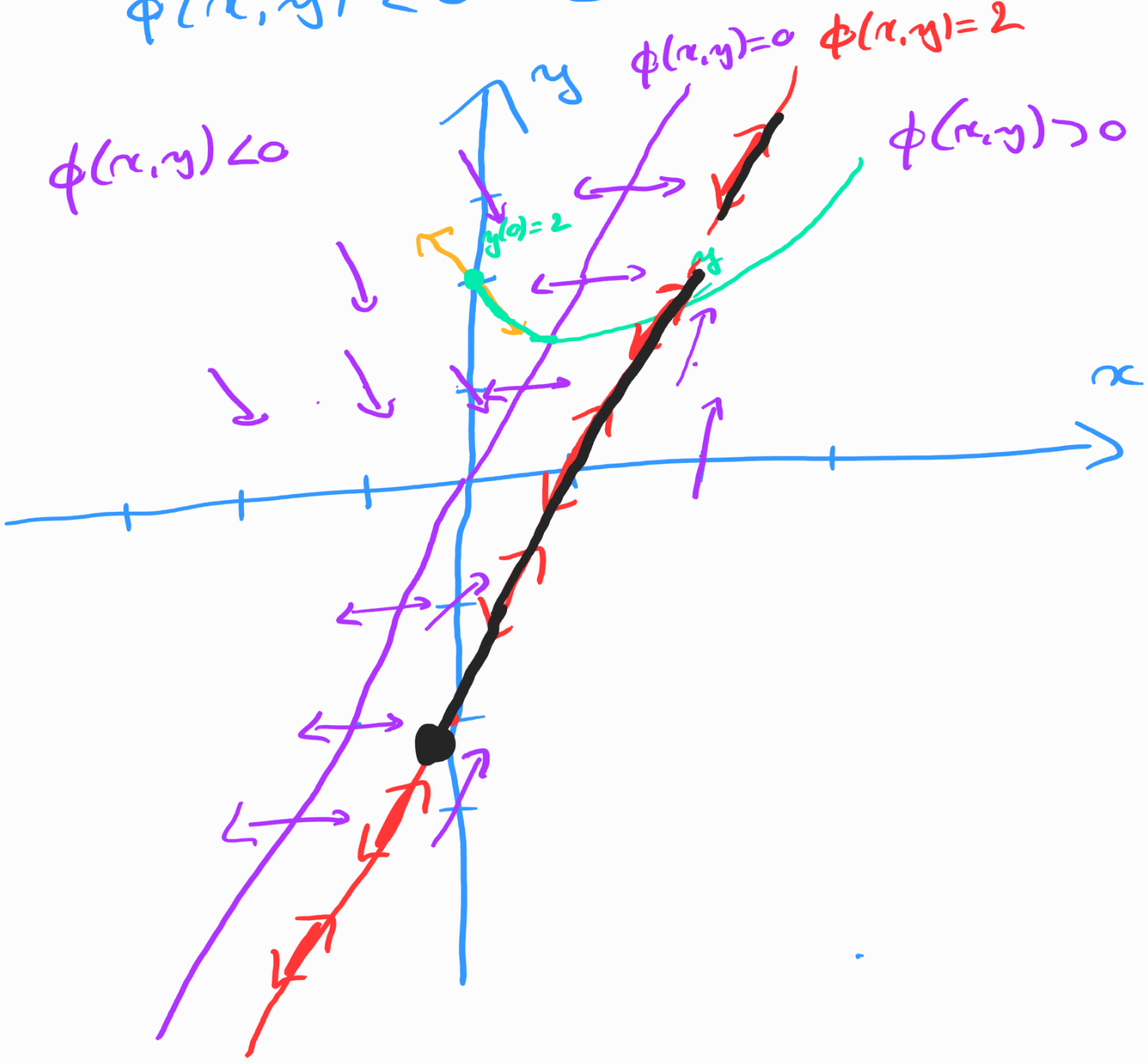
Ex 2 $y' = 2x - y$

1) $\phi(x,y) = 2x - y$

$\phi(x,y) = 0 \iff 2x = y$

$\phi(x,y) > 0 \iff 2x > y$

$\phi(x,y) < 0 \iff 2x < y$



2) Slope on point $(0,2)$?

$$\phi(0,2) = -2$$

3) $\phi(x,y) = 2 \iff 2x - y = 2$

$$\iff y = 2x - 2$$

Guess: one solution is $y(x) = 2x - 2$?

$$y'(x) = 2$$

$$2x - y(x) = 2x - (2x-2) = 2$$

} ok!