For the first few years, the harvesting rate of 12 was working well and Fish.net was making a good profit and the population was remaining stable. To capitalize on their success, they decided to increase the harvesting rate by a minor amount. To determine the effect that the new harvesting rate would have on the fish population we followed the same process we did previously.

$$\frac{dP}{dt} = 2P(1 - \frac{P}{25}) - (13)$$

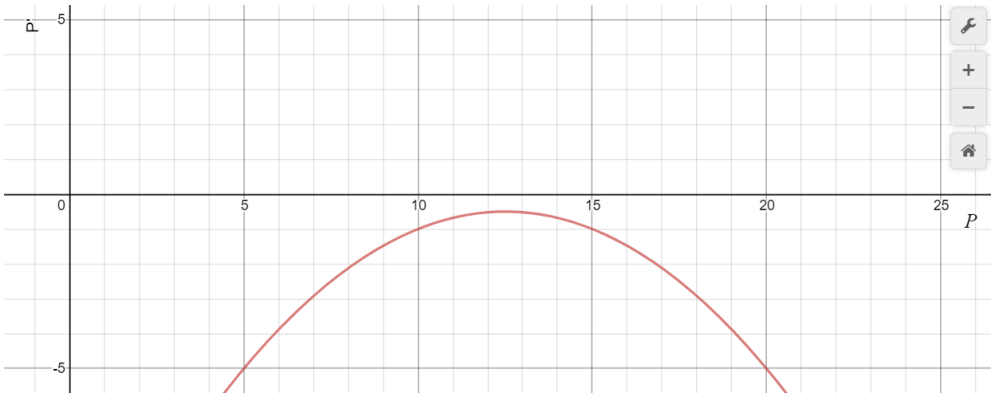
$$\frac{dP}{dt} = -\frac{2P^2}{25} + 2P - 13 = 0$$

$$a = -\frac{2}{25}, b = 2, c = -13$$

$$P = \frac{-(2) \pm \sqrt{(2)^2 - 4(-\frac{2}{25})(-13)}}{2(-\frac{2}{25})}$$

$$P = nonreal\ answer$$

Given that when solving for when the population is not growing results in a nonreal answer means that our model lies entirely below the P-axis, which as discussed in our initial report will result in depletion of the fish in the hatchery no matter the population size.



Population Rate of Change v. Population (Desmos.com)