HW 9.6

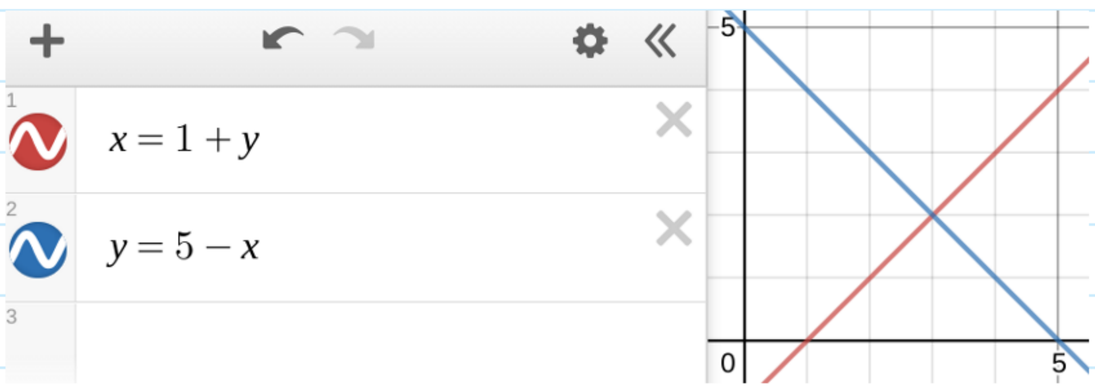
Thursday, October 1, 2020 10:28 AM

Consider a game in which, simultaneously, player 1 selects any real number x and player 2 selects any real number y. The payoffs are given by:

$$u_1(x, y) = 2x - x^2 + 2xy$$
$$u_2(x, y) = 10y - 2xy - y^2.$$

(a) Calculate and graph each player's best-response function as a function of the opposing player's pure strategy.

$du_1/dx = 2 - 2x + 2 \Rightarrow x = 1 + y$
$du_2/dx = 10 - 2y - 2x \Rightarrow y = 5 - x$



(b) Find and report the Nash equilibria of the game.

$x = 1 + 5 - x$
$x = 6 - x$
$2x = 6$
$x = 3 \rightarrow y = 5 - 3 = 2$

$NE = (3, 2)$

(c) Determine the rationalizable strategy profiles for this game.

$S = (3, 2)$