Activity: D-Day
Econ 305

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Find *all* of the Nash equilibria of the following game:

	Defend Normandy (DN)	Defend Calais (DC)
Invade Normandy (IN)	-2,2	1,-1
Invade Calais (IC)	3,-3	-1,1

What is the probability of invading an undefended site (outcomes of (IN, DC) or (IC, DN))? Let $p = \sigma_1(IN)$ and $q = \sigma_2(DN)$.

$\sigma_1 = p(IN) + (1-p)(IC)$

$\sigma_2 = q(DN) + (1-q)(DC)$

$U_1(IN, \sigma_2) = -2(q) + 1(1-q)$

$U_1(IC, \sigma_2) = 3(q) + (-1)(1-q)$

$-2q + 1 - q = 3q - 1 + q$

$2 = 7q$

$q^* = 2/7$

$U_2(\sigma_1, DN) = 2p + (-3)(1-p)$

$U_2(\sigma_1, DC) = -p + 1(1-p)$

$5p - 3 = 1 - 2p$

$p^* = 4/7$

$(4/7, 2/7)$