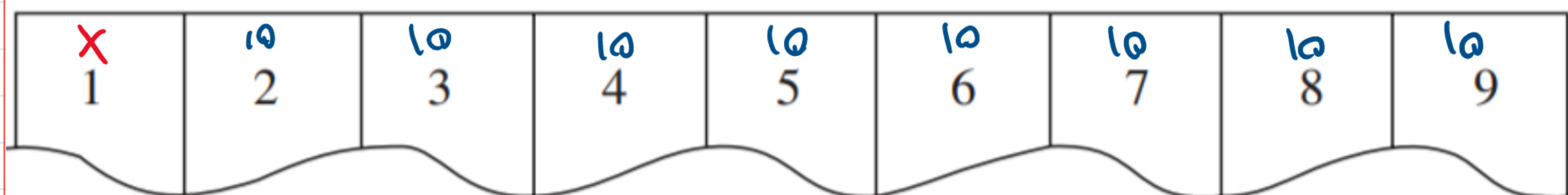# Passed Solution review

Consider a location game with nine regions like the one discussed in this chapter. But instead of having the customers distributed uniformly across the nine regions, suppose that region 1 has a different number of customers than the other regions. Specifically, suppose that regions 2 though 9 each

has ten customers, whereas region 1 has x customers. For what values of x does the strategy of locating in region 2 dominate locating in region 1?

x	10	10	10	10	10	10	10	10
1	2	3	4	5	6	7	8	9

Region 2 only makes sense if $x < 80$ because at that point region 1 is less than the rest of the board combined

Player 2 location

$$
P_1 \text{ Location}
\begin{array}{c|c|c|c|c|c|c|c|c|c}
 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\hline
1 & \frac{x}{2}+40 & x & x+5 & x+10 & x+15 & x+20 & x+25 & x+30 & x+35 \\
2 & 80 & \frac{x}{2}+40 & x+10 & x+15 & x+20 & x+25 & x+30 & x+35 & x+40 \\
\cdots
\end{array}
$$

↑ only P_1's payoffs

$80 > \frac{x}{2}+40$
$40 > x/2$
$80 > x$

$x/2 + 40 > x$
$40 > x/2$
$80 > x$