AP® MICROECONOMICS
2013 SCORING GUIDELINES

Question 2

5 points (1 + 2 + 1 + 1)

(a) 1 point:
- One point is earned for stating that PieCrust should choose to advertise because it makes greater profit by advertising: $250> $180.

(b) 2 points:
- One point is earned for stating that LaPizza does not have a dominant strategy.
- One point is earned for stating that its best choice depends on the strategy chosen by PieCrust. When PieCrust advertises, LaPizza does better by not advertising ($300>$200); When PieCrust does not advertise, LaPizza does better by advertising ($500 >$400).

(c) 1 point:
- One point is earned for identifying the daily profit for PieCrust, $450, and for LaPizza, $300.

(d) 1 point:
- One point is earned for reproducing the payoff matrix to reflect the effect of the increase in advertising costs.

<div align="center">

LaPizza

		Advertise	Not Advertise
	Advertise	$190, $140	$390, $300
PieCrust	Not Advertise	$180, $440	$390, $400

</div>

a) If LaPizza chooses to advertise then PieCrust should advertise. This is because if LaPizza advertises PieCrust can either advertise and make $250 or not advertise and make $180. $250 > $180, so PieCrust should advertise.

b) LaPizza does not have a dominant strategy. This is because if PieCrust advertise LaPizza should not advertise because $300 > $200. Yet if PieCrust does not advertise than LaPizza should advertise because $500 > $400. Thus, LaPizza would not definitely do one strategy no matter what PieCrust does, so there is no dominant strategy.

c) i. PieCrust's daily profit = $450.
   ii. LaPizza's daily profit = $300

d)   La Pizza

		Advertise	Not Advertise
Pie Crust	Advertise	$190, $140	$390, $300
	Not Advertise	$180, $440	$390, $400

2B
171

A. If LaPizza were to advertise, Piecrust should advertise as well. If both firms were to advertise, Piecrust would make $250 as opposed to $180 if Piecrust were to choose not to.

B. LaPizza doesn't have a dominant strategy. If they were to choose between the two, Piecrust would make more money if they advertised. If LaPizza were to know that Piecrust will advertise, their only choice is to not advertise to make more money.

C.
(i) $390
(ii) $400

D.

	LaPizza	
	Advertise	Not Advertise
Piecrust Advertise	$190, $140	$390, $300
Piecrust Not Advertise	$180, $440	$390, $400

ANSWER PAGE FOR QUESTION 2

a) if LaPizza chooses to advertise, Piecrust should also choose to advertise as it would make $250 daily profits with advertising rather than $180 without advertising.

b) LaPizza's dominant strategy would be to ~~not~~ not advertise because it would make ~~$500~~ $400 or $300, which would be better than $200 ~~$~~

c) Nash equilibrium
   i) Piecrust's daily profit $390

   ii) LaPizza's daily profit $400

d) If advertising cost $60 per day...

	La Pizza		
	advertise	not advertise	
Piecrust advertise	$190, $140	$390, $240	
not advertise	$120, $440	$330, $340	

if these higher advertising costs were in effect

Piecrust would not advertise
LaPizza would not advertise

Question 2

Overview

This question determined students' understanding of some aspects of game theory. Part (a) tested students' ability to use a payoff matrix to determine the best decision for one player on the basis of another player's decision. Part (b) determined whether students understand the concept of a dominant strategy. Students illustrate their understanding by indicating dollar values in the payoff matrix. Part (c) tested whether students could identify a Nash equilibrium. Part (d) determined whether students can redraw a payoff matrix to show the effect of changes in some of the payoffs.

Sample: 2A
Score: 5

The student answers all parts of the question correctly and earned all 5 points.

Sample: 2B
Score: 3

The student did not earn 1 point in part (b) for failing to explain, using the dollar values in the payoff matrix, why LaPizza does not have a dominant strategy. The student did not earn 1 point for part (c) for incorrectly determining the daily profit for PieCrust and LaPizza in the Nash equilibrium.

Sample: 2C
Score: 1

The student earned 1 point in part (a) for correctly explaining that PieCrust should advertise since $250>$180.