3. Nirali is a student at the University of Ainsley. She has 5 hours to study for two exams today. The tables below show Nirali's expected scores given the amount of time she studies for each exam.

Number of Hours Spent Studying Microeconomics	Expected Score on Microeconomics Exam (100-point scale)
5	100
4	96
3	90
2	82
1	60
0	0

Number of Hours Spent Studying History	Expected Score on History Exam (100-point scale)
0	0
1	40
2	60
3	72
4	77
5	80

(a) Nirali spends 3 hours studying microeconomics and 2 hours studying history. Calculate her gain from the second hour spent studying history.

(b) Calculate Nirali's opportunity cost of the second hour spent studying history.

(c) Assume Nirali increases the time she allocates to studying history. What happens to the opportunity cost of studying history? Explain.

(d) Assume that Nirali has a goal of maximizing the sum of her test scores (the score on microeconomics plus the score on history). How many hours should she study for each exam?

(e) Nirali learns that her tennis practice has been canceled, freeing up an additional hour for studying. Given your answer to part (d), will Nirali allocate the additional hour to studying microeconomics or to studying history to maximize the sum of her test scores? Explain using marginal analysis.

STOP

END OF EXAM

5 Points (1 + 1 + 1 + 1 + 1)

(a) 1 point:

- One point is earned for correctly calculating the gain, 20 points.

(b) 1 point:

- One point is earned for correctly calculating the opportunity cost, 6 points for that hour (or 6/20).

(c) 1 point:

- One point is earned for stating that the opportunity cost increases and for using one the following explanations:

  o The expected score on microeconomics decreases at an increasing rate with each additional hour spent studying history.

  o The marginal cost is rising (expected score on microeconomics decreases) for each additional hour spent studying history.

(d) 1 point:

- One point is earned for stating that Nirali should spend 2 hours on studying microeconomics and 3 hours on studying history to maximize the sum of expected scores.

(e) 1 point:
- One point is earned for stating that Nirali will spend the additional hour studying microeconomics because studying microeconomics will increase her expected total score by 8 points compared to 5 points if spent studying history.