Econ 101
Fall 2005
Professor Wallace

Math Review Questions

Question 1. Graph the following pairs of lines, and find the point where they cross. For parts E and F, also write the equation of the lines in slope-intercept form. Always use algebra; never try to estimate from your graph.

A. $y = 12 - x$ $y = x$

B. $4y + 2 = 2x - 6$ $y + 3 = 5 - 1/2x$

C. $p = 15 - 1/3q$ $p = q + 4$ (put p on the vertical axis)

D. $p = 10000 - 100q$ $q = 0.01p - 40$ (put p on the vertical axis)

E. A line that passes through (0,4) and (2,8); and a line that passes through (0,9) and (6,3).

F. A line that passes through (8,3) and (2,6); and a line that passes through (5,2) and (3,0).

Question 2. A newspaper prints the same number of pages every day. Readers like the news and photographs in the paper, but dislike advertising. As a result, as the number of ads increases, the number of readers declines. This relationship is described by the equation R = 180-3A, where R is the number of readers (in thousands) and A is the number of ads.

A. At what level of A does no one buy the newspaper?
B. At what level of A is the number of readers maximized?
C. Advertisers buying ads prefer that their ads be seen by a large number of readers, and are therefore willing to buy more ads when there are more readers. This relationship is described by the equation A = 3R. Find a level of advertising, A*, and number of readers, R*, such that, (1) R* readers want to read the paper given the level of advertising A* and (2) advertisers want to purchase A* pages of ads given that R* readers will read the paper.