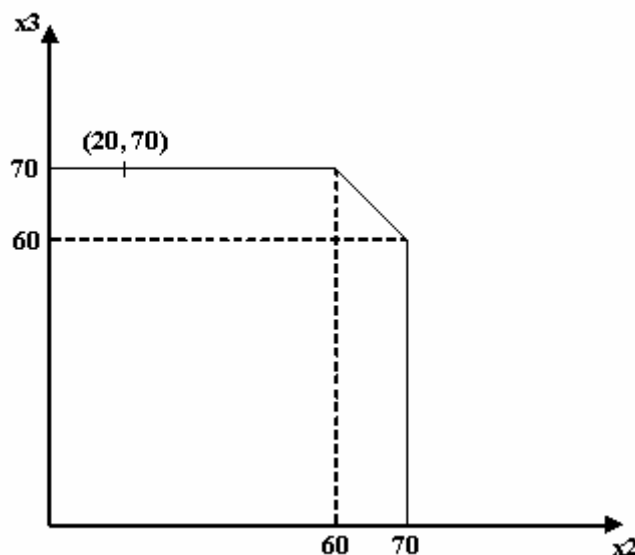**Unofficial Suggested Solution to Midterm 1 Bonus Question**

Special Thanks to Henry Chau for pointing out the correct answer

The way to tackle this question is to first realize that what Polly Sigh cares only about the scores from x2 and x3; the two midterms are totally identical to her in all other aspect. This means that the indifference curve is going to be symmetric—what happens at a point (a,b) must also be true for (b,a), with the adjustment of turning 90-degrees counterclockwise.

Consider what happens when x3 = 70 and x2 < 60. In this case since x2 < x1 < x3, x2 will be dropped and her average score is (x1 + x2)/2 = (60 + 70)/2 = 65. So Polly's utility is the same throughout the whole region; the indifference curve is thus a horizontal line. By symmetry, we have a vertical line for x2 = 70 and x3 < 60.

Now what happens when x2, x3 > 60? In this case x1 < x2, x3, so x1 will be dropped. The average score is (x2 + x3)/2. Since we know the average score—which Polly's utility depends one—is 65 at (20,70), we set (x2 + x3)/2 = 65; this gives a linear function x3 of x2: x3 = 130 – x2, a downward-slopping line segment connecting (60,70) and (70,60).