

Homework 7

- Questions 1&2 are T/F. Questions 3&4 are multiple choice.(1 point each)
- Questions 7.1 & 7.11 below. Question 7.1 is worth 2 points. Question 7.11 is worth 4 points.

1. According to the Principle of Revealed Preferences, if  $(x_1, x_2)$  is the chosen bundle when prices are  $(p_1, p_2)$  and  $(y_1, y_2)$  is some other bundle such that  $p_1x_1 + p_2x_2$  is greater than or equal to  $p_1y_1 + p_2y_2$ , then if the consumer is choosing the most preferred bundle he can afford, we must have  $(x_1, x_2)$  strictly preferred to  $(y_1, y_2)$ .

2. If the bundle  $(x_1, x_2)$  is strictly preferred to the bundle  $(y_1, y_2)$  and the bundle  $(y_1, y_2)$  is strictly preferred to the bundle  $(z_1, z_2)$  then the bundle  $(x_1, x_2)$  is directly revealed preferred to  $(z_1, z_2)$ .

3. Let A stand for the bundle  $(7, 9)$  B stand for the bundle  $(10, 5)$  and C stand for the bundle  $(6, 6)$ . When prices are  $(2, 4)$ . Betty chooses C. When prices are  $(12, 3)$ . She chooses A. Which of the following is true?

- (a) A is directly revealed preferred to B.
- (b) A is indirectly revealed preferred to B.
- (c) C is directly revealed preferred to A.
- (d) B is directly revealed preferred to A.
- (e) None of the above.

4. The Laspeyres price index uses the old quantities for the weights. In the base year, good 1 cost \$2 and good 2 cost \$1. The current price of good 1 is \$7 and the current price of good 2 is \$2. In the base year, the consumption bundle was  $(x_{1b}, x_{2b}) = (5, 9)$ . The current consumption bundle is  $(x_{1t}, x_{2t}) = (7, 5)$ . Which of the following is closest approximation of the Laspeyres index of current prices relative to base year prices?

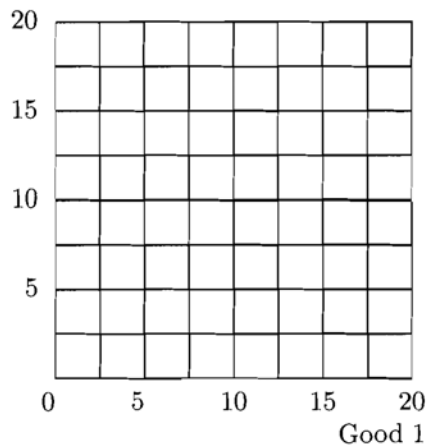
- (a) 3.11
- (b) 0.32
- (c) 2.79
- (d) 2.09
- (e) 1.32

**7.1 (0)** When prices are  $(4, 6)$ , Goldie chooses the bundle  $(6, 6)$ , and when prices are  $(6, 3)$ , she chooses the bundle  $(10, 0)$ .

(a) On the graph below, show Goldie's first budget line in red ink and her second budget line in blue ink. Mark her choice from the first budget with the label *A*, and her choice from the second budget with the label *B*.

(b) Is Goldie's behavior consistent with the weak axiom of revealed preference? \_\_\_\_\_.

Good 2



The Following is the information you will need for question 7.11

In 1933, the Swedish economist Gunnar Myrdal (who later won a Nobel prize in economics) and a group of his associates at Stockholm University collected a fantastically detailed historical series of prices and price indexes in Sweden from 1830 until 1930. This was published in a book called *The Cost of Living in Sweden*. In this book you can find 100 years of prices for goods such as oat groats, hard rye bread, salted codfish, beef, reindeer meat, birchwood, tallow candles, eggs, sugar, and coffee. There are also estimates of the quantities of each good consumed by an average working-class family in 1850 and again in 1890.

The table below gives prices in 1830, 1850, 1890, and 1913, for flour, meat, milk, and potatoes. In this time period, these four staple foods accounted for about 2/3 of the Swedish food budget.

#### Prices of Staple Foods in Sweden

*Prices are in Swedish kronor per kilogram, except for milk, which is in Swedish kronor per liter.*

	1830	1850	1890	1913
Grain Flour	.14	.14	.16	.19
Meat	.28	.34	.66	.85
Milk	.07	.08	.10	.13
Potatoes	.032	.044	.051	.064

Based on the tables published in Myrdal's book, typical consumption bundles for a working-class Swedish family in 1850 and 1890 are listed below. (The reader should be warned that we have made some approximations and simplifications to draw these simple tables from the much more detailed information in the original study.)

#### Quantities Consumed by a Typical Swedish Family

*Quantities are measured in kilograms per year, except for milk, which is measured in liters per year.*

	1850	1890
Grain Flour	165	220
Meat	22	42
Milk	120	180
Potatoes	200	200

**7.11 (0)** This question draws from the tables in the previous question. Let us try to get an idea of what it would cost an American family at today's prices to purchase the bundle consumed by an average Swedish family in 1850. In the United States today, the price of flour is about \$.40 per kilogram, the price of meat is about \$3.75 per kilogram, the price of milk is about \$.50 per liter, and the price of potatoes is about \$1 per kilogram. We can also compute a Laspeyres price index across time and across countries and use it to estimate the value of a current US dollar relative to the value of an 1850 Swedish kronor.

(a) How much would it cost an American at today's prices to buy the bundle of staple food commodities purchased by an average Swedish working-class family in 1850?\_\_\_\_\_.

(b) Myrdal estimates that in 1850, about  $2/3$  of the average family's budget was spent on food. In turn, the four staples discussed in the last question constitute about  $2/3$  of the average family's food budget. If the prices of other goods relative to the price of the food staples are similar in the United States today to what they were in Sweden in 1850, about how much would it cost an American at current prices to consume the same overall consumption bundle consumed by a Swedish working-class family in 1850?\_\_\_\_\_.

(c) Using the Swedish consumption bundle of staple foods in 1850 as weights, calculate a Laspeyres price index to compare prices in current American dollars relative to prices in 1850 Swedish kronor.\_\_\_\_\_ If we use this to estimate the value of current dollars relative to 1850 Swedish kronor, we would say that a U.S. dollar today is worth about \_\_\_\_\_ 1850 Swedish kronor.