Exercises for seminar 3. ECON3200-ECON4200.

1. Andrea has preferences over two goods, i.e. x_1 and x_2, represented by the following utility function:

$$u = x_1 + a\sqrt{x_2},$$

where $a > 0$.

   (a) Define the Marshallian and Hicksian demands for the two goods.

   (b) Find the cost (or expenditure) function and check that the Hicksian demands are the derivative of the cost functions wrt prices.

2. Suppose that at prices $(p_1, p_2) = (5, 10)$, a rational consumer endowed with a wealth of 100 consumes the bundle $(x_1, x_2) = (6, 7)$ and reaches the well-being level v. Suppose that an econometrician has measured the following derivatives:

$$\frac{\partial H^1(5, 10; v)}{\partial p_1} = -2$$

$$\frac{\partial H^1(5, 10; v)}{\partial p_2} = +1$$

$$\frac{\partial D^1(5, 10; 100)}{\partial w} = \frac{2}{7}$$

Estimate the bundle that the consumer would have chosen if the prices were $(p_1, p_2) = (5, 11)$.