

### Example

The following problems deal with Jaylum's preferences for music downloads (m) and pizza (p), which are given by the following utility function:

$$U(m, p) = mp$$

Assume Jaylum faces prices of \$1 per download and \$2 per pizza slice and has \$60 to spend. What is the optimal bundle of goods Jaylum purchases? Put m on the horizontal axis.

- i. Get Price Ratio

$$P_m = 1 \quad P_p = 2$$

so Price Ratio is  $1/2$

(1)

- ii. Get MRS

$$\frac{\partial U(m, p)}{\partial p} = m \quad \text{and} \quad \frac{\partial U(m, p)}{\partial m} = p \quad \text{so}$$

$$\text{MRS} = \frac{\frac{\partial U(m, p)}{\partial m}}{\frac{\partial U(m, p)}{\partial p}} = \frac{p}{m} \quad (2)$$

- iii. MRS = Price Ratio

$$\frac{p}{m} = \frac{1}{2}$$

$$m = 2p$$

(3)

- iv. Substitute (3) into BC

$$2p = 60 - 2p$$

$$p = 15$$

- v. Lastly solve for m

$$\text{From (3) } m = 2p = 30$$