1.4 — Utility Maximization - Practice Problems

ECON 306

1. Suppose you can watch movies in the theater (t) and streaming at home (s), and earn utility according to the utility function:

$$u(t, s) = 4ts$$

Where your marginal utilities are:

$$MU_t = 4s$$
$$MU_s = 4t$$

a. Put t on the horizontal axis and s on the vertical axis. Write an equation for $MRS_{t,s}$

b. Would bundles of $(2, 2)$ and $(1, 4)$ be on the same indifference curve?

c. Sketch this indifference curve.

2. You can get utility from consuming Soda (s) and Hot dogs (h), according to the utility function:

$$u(s,h) = \sqrt{sh}$$

The marginal utilities are:

$$MU_s = 0.5s^{-0.5}h^{0.5}$$
$$MU_h = 0.5s^{0.5}h^{-0.5}$$

You have an income of \$12, the price of Soda is \$2, and the price of a Hot dog is \$3. Put Soda on the horizontal axis and Hot dogs on the vertical axis.

a. What is your utility-maximizing bundle of Soda and Hot dogs?

b. How much utility does this provide?