# 1.4 — Utility Maximization - Practice Problems

ECON 306 - Spring 2021

**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?**