

## 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?