ECON 101 (Trost)

TA Session Worksheet, Module 1 (Intro)

Name:_____ TA:_____

1. What's the opportunity cost (for you) of attending today's TA session?

   sleeping
   other work (specific)
   getting a bfast sandwich

2. Describe a time you didn't ignore sunk costs (or make one up!).

   finished drinking a bad drink
   stay through a boring game

3. Donuts cost $0.60. The first donut gives you $2 worth of benefit. Each following donut gives you half as much benefit as the previous one. How many donuts should you buy?

   P = $0.60 MB1 = $2 ✓
   MB2 = $1 ✓
   MB3 = $0.50 ✗

   2 donuts

4. In your group, come up with a good example of one of the economic "mistakes" we talked about. (unintended consequences, confusing association with causation, fallacy of composition, sample selection bias).

   unintended consequence - throwing away batteries → fire

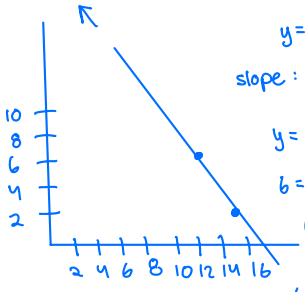
   association ≠ causation - ice cream sales ↑ cases of heat stroke

   composition - buying your size shoe doesn't generalize

   selection bias - sample of top performing students asked if they enjoy school

   composition - popular dish will not please everyone

5. MATH!!! (TA – do only what you have time for. Can save the rest for next week!)
   a. Suppose you know that the two points (X, Y) = (12, 6) and (15, 2) sit on the same line. From this information write an equation for this line in slope-intercept form (drawing might help!).



$y = mx + b$

slope: $\frac{6-2}{12-15} = \frac{4}{-3} = -\frac{4}{3}$

$y = -\frac{4}{3}x + b$

$6 = -\frac{4}{3}(12) + b$

$6 = -\frac{48}{3} + b$

$6 = -16 + b$

$b = 22$

$\boxed{y = -\frac{4}{3}x + 22}$

   b. Suppose that you know that the slope of the line is 2 and that this line also contains the point (15, 35). What is the y-intercept for this line? Show your work.

$m = 2$

$y = mx + b$

$35 = 2(15) + b$

$35 = 30 + b$

$\boxed{b = 5}$

c. You are given the following two equations:
Y = 2X + 100
Y = 76 – 10X
Find the solution (X, Y) for where these two equations intersect. Show your work.

$2X + 100 = 76 - 10X$

$12X + 100 = 76$

$12X = -24$

$X = -2$

$Y = 2(-2) + 100$
$= -4 + 100$
$= 96$

$Y = 76 - 10(-2)$
$= 76 + 20$
$= 96$

$\boxed{(-2, 96)}$

CHALLENGE ROUND – ONLY DO IF YOU HAVE EXTRA TIME!!

d. Suppose that you know that the relationship between X and Y, where X is the variable measured on the horizontal axis, can be described by the following equation:
$X = 30 - 2Y$ for all values of $X \geq 0$
You are then told that for every Y value the X value has now increased by 5 units. Write the equation in slope-intercept form for this new line. Show your work. Hint: you might find it helpful to draw a "sketch" illustrating these two lines before you start doing your calculations.

$X = 30 - 2Y$ → $2Y = 30 - X$ → $Y = 15 - \frac{1}{2}X$

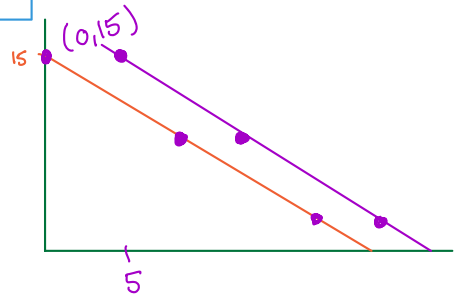
$X = 30 - 2Y + 5$

$X = 35 - 2Y$

$2Y = 35 - X$

$Y = \frac{35}{2} - \frac{1}{2}X$

$Y = -\frac{1}{2}X + \frac{35}{2}$



e. Suppose that you know that the relationship between X and Y, where X is the variable measured on the horizontal axis, can be described by the following equation:
$Y = 5 + 2X$ for all values of $X \geq 0$
You are then told that for every X value the Y value has now decreased by 2 units. Write the equation in slope-intercept form for this new line. Show your work. Hint: you might find it helpful to draw a "sketch" illustrating these two lines before you start doing your calculations.

$Y = 5 + 2X$

$Y = 5 + 2X - 2$

$Y = 2X + 3$