EC 380 Problem Set 01

Instructions: Answers must be submitted online through the designated Canvas assignment. This Problem Set is due on **October 11 at 01:59pm**. Please write as legible and clearly as possible. You will not be given full credit if your answers cannot be easily understood.

Questions

1. [12 points] Answer the following short questions:
   (a) [4 points] How is the Trade to GDP ratio measured?

$$\frac{\text{Imports + Exports}}{\text{GDP}}$$

No partial credit if anything else

   (b) [4 points] How do people/labor flows impact trade integration? Why?

Some form of:

(1 pt). Reduction of barriers means higher trade.

(3 pts). The why should make logical sense.

↳ Be more picky here.

   (c) [4 points] Have trade frictions **increased or decreased** over time? How does that impact trade flows?

Decreased. (+2 pts)

- Some form of argument that mentions reduced frictions allows for lower costs of trade (+2 pts)
- If they do not mention costs (-1 pt.)

2. [18 points] Suppose we are considering a **Ricardian Model** setting, where countries have not yet opened up to trade. Two goods are produced exclusively by domestic labor supplies, Rubber Ducks and Bath Bombs. Home and foreign produce both goods as in the table below. The two countries have a labor pool $\bar{L} = 50$ each, which means there is no difference in their labor endowments.

	Rubber Ducks	Bath Bombs
Home	12	10
Foreign	14	8

Consider the autarky scenario where neither country exchange goods. Complete the following questions to obtain the two countries consumption and production equilibria.

(a) [2 points] Which country has **comparative advantage in producing Bath Bombs**?

$$OC_{BB}^{HOME} = \frac{MPL_{RD}^{HOME}}{MPL_{BB}^{HOME}} = \frac{12}{10} = 1.2$$

$$OC_{BB}^{FOREIGN} = \frac{MPL_{RD}^{FOREIGN}}{MPL_{BB}^{FOREIGN}} = \frac{14}{8} = 1.75$$

$1.2 < 1.75$ → Home has comp. adv. +2

- No calculations required. Just clearly stating who has it is fine

(b) [2 points] What is the **price of Rubber Ducks** in each country?

Price = Opportunity Costs

HOME	FOREIGN
$OC_{RD}^{H} = \frac{10}{12} = P_{RD}^{H}$	$OC_{RD}^{F} = \frac{8}{14} = P_{RD}^{F}$
$= 0.83$	$= 0.57$

- Decimals or fractions are fine

+2 pts for both countries

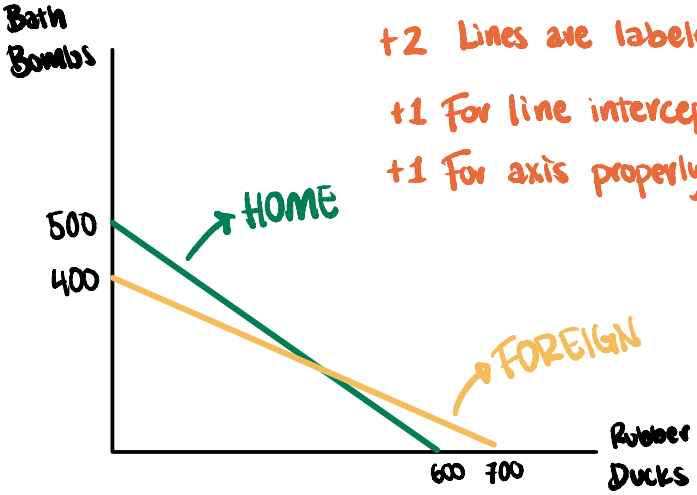
(c) [2 points] What are the **maximum quantities of each good** that Home and Foreign can produce? (Fill in the table)

Just the table being correct is fine

	Rubber Ducks	Bath Bombs
Home	600	500
Foreign	700	400

Max output is determined by $\bar{L} \cdot MPL_x$ where $\bar{L} = 50$

(d) [4 points] Sketch the PPFs for **both countries** in a single graph. Be sure to correctly label the graph for full credit.



+2 Lines are labeled/colored distinctly (Home/Foreign)

+1 For line intercepts properly labeled

+1 For axis properly labeled

- They may flip which good is x-axis & y-axis Just make sure it looks okay

(e) [4 points] What should be the **World Price of Rubber Ducks**?

World Price is somewhere between country prices

$$P_{RD}^{F} = \frac{8}{14} > P_{RD}^{world} > \frac{10}{12} = P_{RD}^{H}$$

- +4 pts if answer is the inequality
- +3 pts if answer is an exact value

(f) [4 points] Suppose Home prefers to consume **5 Rubber Ducks** for every **2 Bath Bombs**. Calculate the consumption bundle of Home.

$BB = 500 - \frac{10}{12}RD$ & $\frac{RD}{BB} = \frac{5}{2} \rightarrow BB = \frac{2}{5}RD$

- +2 pts for identifying system of equations

$\frac{2}{5}RD = 500 - \frac{10}{12}RD$

$RD\left(\frac{2}{5} + \frac{10}{12}\right) = 500$

$\left(\frac{74}{60}\right)RD = 500$

$RD = \frac{500}{\frac{74}{60}} = 405.41$

$BB = 500 - \frac{10}{12}RD$

$BB = 500 - \frac{10}{12}(405.41)$

$BB = 500 - 337.84$

$BB = 162.16$

Alternatively:

$BB = \frac{2}{5}RD = \frac{2}{5}(405.41) = 162.16$

- +1 pt for each correct good output