ECON 39: International Trade
Midterm #1 Practice Problems
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Practice Problems

1. True / False / Uncertain. For each of the following statements, tell me if the statement is true, false or uncertain and explain why using words, figures, or both. Note: the explanation is more important than the answer!

   (a) "In a Ricardian trade model, the representative agent of a country is always made better off by trade if the equilibrium relative world price is different than the equilibrium autarkic price."

   (b) "Iceberg trade costs are so-called because there is a probability that a shipment will fail to arrive because the ship carrying it runs into an iceberg."

   (c) "In a Ricardian model, if workers in country A have higher wages than workers in country B in autarky, then opening up trade between the two countries will cause the wage of workers in country A to fall."

2. Consider a world with two countries and two goods. As in class, let us call the countries U.S. and Mexico and the goods footballs and soccer balls. Suppose that there are 10 workers in the U.S. and 6 workers in Mexico. Each worker in the U.S. *can make* either 10 soccer balls or 15 footballs, whereas each worker in Mexico *can make* either 10 soccer balls or 5 footballs. Let the utility of *each worker* in each country be $U = \left(c^{SB}\right)^{\frac{1}{2}} \left(c^{FB}\right)^{\frac{1}{2}}$, where c^{SB} is the quantity that the worker consumes of soccer balls and c^{FB} is the quantity that the worker consumes of footballs.

   (a) In autarky, what is the equilibrium utility for a U.S. worker?

   (b) Define the world equilibrium.

   (c) Solve the world equilibrium. With free trade, what is the equilibrium utility for a U.S. worker?

   (d) Suppose there was a zombie attack in the U.S., from which only 4 workers in the U.S. survived. Calculate the welfare in the post-zombie equilibrium for these workers in U.S. How has the welfare in the U.S. changed? Why did this change occur?

3. Consider a world with two countries and two goods. As in class, let us call the countries U.S. and Mexico and the goods footballs and soccer balls. Suppose that there are 10 workers in the U.S. and 8 workers in Mexico. Each worker in the U.S. *can make* either 1 soccer balls or 2 footballs, whereas each worker in Mexico *can make* either 1 soccer ball or 1 football. Let the utility of *each worker* in each country be $U = \left(c^{SB}\right)^{\frac{1}{2}} \left(c^{FB}\right)^{\frac{1}{2}}$, where c^{SB} is the quantity that the worker consumes of soccer balls and c^{FB} is the quantity that the worker consumes of footballs.

   (a) Which country has a comparative advantage in footballs? Which country has a comparative advantage in soccer balls?

   (b) Define the free trade equilibrium.

   (c) Guess that the free trade equilibrium is characterized by complete specialization of each country. Is this an equilibrium? Why or why not?

   (d) Guess that the free trade equilibrium is characterized by incomplete specialization of the U.S. Is this an equilibrium? Why or why not?

   (e) What is the equilibrium utility of a worker in the U.S.?

   (f) Suppose that the population of Mexico increases from 8 to 20. What is the new equilibrium utility of a worker in the U.S.? What is the intuition for this change?