

Unit 1 Progress Check: FRQ

1. **Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to “Calculate,” you must show how you arrived at your final answer.**

Two countries, Marland and Teckana, can produce either clothing or food using all their available resources at constant opportunity cost. The table below shows the daily production of clothing or food in Marland and Teckana.

	Clothing	Food
Marland	120	20
Teckana	80	20

- (a) Which country has the absolute advantage in producing food? Explain.
- (b) Which country has the comparative advantage in producing food? Explain using numbers.
- (c) Assume the two countries specialize based on their comparative advantage. If the two countries engage in trade and one unit of food is exchanged for 5 units of clothing, will these terms of trade be mutually beneficial? Explain.
- (d) Suppose Teckana invented new equipment to only increase the production of clothing.
- (i) Draw a correctly labeled graph of Teckana’s initial production possibilities curve, with clothing on the horizontal axis and food on the vertical axis. Plot the numerical values above on the graph.
- (ii) Show the effect of the new equipment on Teckana’s production possibilities curve.
- Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
---	---

The response states that neither country has an absolute advantage in producing food and explains that both countries are producing the same amount of food.

Part (b)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
---	---

Unit 1 Progress Check: FRQ

The response states that Teckana has a comparative advantage in producing food and explains that Teckana has a lower opportunity cost in producing food than Marland. Teckana's opportunity cost of producing one unit of food is 4 units of clothing ($80/20 = 4$). Marland's opportunity cost of producing one unit of food is 6 units of clothing ($120/20 = 6$).

Part (c)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
---	---

The response states that the terms of trade are mutually beneficial and explains that the terms of trade fall between the opportunity costs of both countries (i.e., between 4 and 6 units of clothing).

Part (d)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The two criteria in Part D are not achieved independently. Students must draw a correctly labeled graph of Teckana's initial PPC_1 in order to receive the first point. Receiving the second point is dependent on receiving the first point.

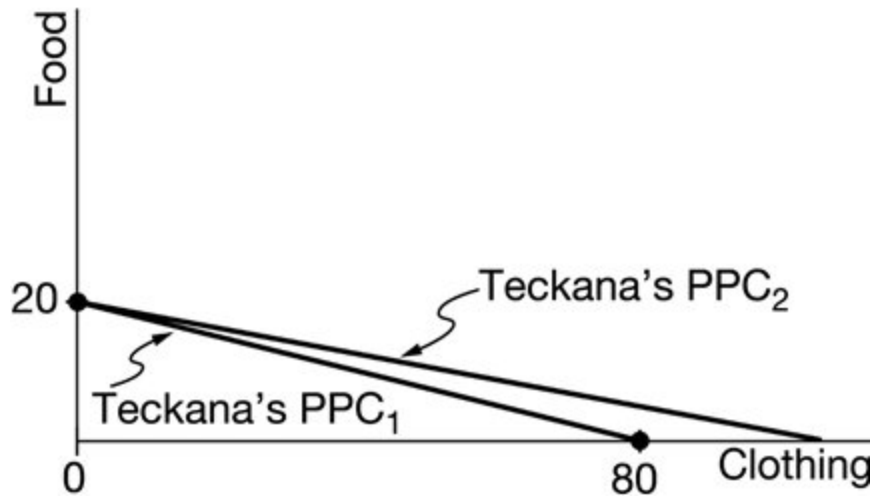


0	1	2
---	---	---

The response accurately includes both of the criteria below.

- ☐ A correctly labeled graph of Teckana's PPC (PPC_1) showing 80 units of clothing on the horizontal axis and 20 units of food on the vertical axis as shown on the graph below.
- ☐ A new PPC (PPC_2) for Teckana showing more units of clothing and 20 units of food as shown on the graph below.

Unit 1 Progress Check: FRQ



Unit 1 Progress Check: FRQ

2. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to “Calculate,” you must show how you arrived at your final answer.

The table below shows the marginal utilities in utils that Sarah derives from consuming two goods, snacks, and movies.

Quantity of Snacks	Marginal Utility of Snacks	Quantity of Movies	Marginal Utility of Movies
0	-	0	-
1	20	1	50
2	18	2	35
3	15	3	24
4	12	4	20
5	10	5	15
6	8	6	10

Sarah has a limited weekly income of \$50, and she spends it all on snacks and movies. Assume the price of snacks is \$5 per unit, the price of a movie ticket is \$10, and Sarah is a utility-maximizing consumer.

- (a) Would Sarah be able to consume 3 snacks and 5 movies? Explain using numbers.
- (b) How many snacks and movies will Sarah consume to maximize her utility? Explain using marginal analysis.
- (c) Calculate the total utility Sarah will receive from consuming the utility-maximizing combination of snacks and movies indicated in your answer in part (b). Show your work.
- (d) Suppose Sarah’s income increases to \$60.
- (i) What will happen to the marginal utility per dollar spent on movies?
- (ii) Will Sarah be better off buying two more snacks or one more movie ticket? Explain using numbers.
- Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
---	---

Unit 1 Progress Check: FRQ

The response states “no” and explains that it is not possible for Sarah to consume the combination of 3 snacks and 5 movies because her income is not sufficient. The combination will cost her 65, *but she has a limited income of only 50*.

Part (b)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
---	---

The response states that Sarah will consume 4 snacks and 3 movies, and it explains that, to maximize utility, the marginal utility (MU) per dollar spent on snacks should be equal to the MU per dollar spent on movies. The MU per dollar spent on the fourth snack is 2.4 ($12/\$5$) and equals the MU per dollar spent on the third movie ticket, 2.4 ($24/\$10$).

Part (c)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must show appropriate work in order to receive the point.



0	1
---	---

The response calculates Sarah’s total utility as 174 utils and shows the work. This is attained by summing up the MUs derived from the first 4 snacks consumed, 65 utils

($20 + 18 + 15 + 12$), and the MUs derived from the first 3 movies watched, 109 utils ($50 + 35 + 24$). Thus, $65 + 109 = 174$ utils.

Part (d)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1	2
---	---	---

The response accurately includes both of the criteria below.

☐

States that the increase in income has no impact on the marginal utility per dollar spent on movies.

Unit 1 Progress Check: FRQ☐

States that Sarah will be better off buying one more movie ticket because the additional movie ticket increases her total utility by 20 utils, whereas buying 2 more snacks increases her total utility by only 18 utils.