Here is the midterm 2 guide for form A, as promised. I don't expect this guide to be error free, since I had to rush this somewhat to get it done. That also means that the guide has not been proof read yet, so I apologize for any minor errors that may occur. If you find something that doesn't look right, please let me know. Although this may not be of much help to you now after the midterm, I think it might be a good resource to have for studying for the final. If you had form B, I believe the questions were exactly the same but just in a different order. I'll leave sorting out the ordering to you this time.

Once again, this is not an official guide so if anything is said in class by Professor Holmes (or your TAs, for those in other sections)that is different than what I have, listen to him (them) instead.

Kelvin, like the temperature

1. Hopefully you got this question right. After all, there is only one choice for your answer!
2. When trade is based on comparative advantage, trading partners must be different in terms of their PPF because otherwise, they will have the same opportunity costs, and that means even If they trade they will just do as good as they would if they produced themselves. The answer is B.
3. Right away, seeing quotas should tip you off to the domestic producers. Quotas are used to limit foreign imports, and the whole point of importing is because the good is cheaper abroad. So the consumers in the US definitely do not want a quota, and that also means that foreign producers will not want a quota since they can't sell as much under a quota. D is false since we've seen that quotas create a dead weight loss that lowers total surplus. A quota is then probably the result of lobbying from US producers of sugar. The answer is B.
4. Here, you should find the point (16 pizzas, 4 sodas) on the graph right away. You will see that it is conveniently on an indifference curve. After that, finding the answer just becomes a game of "finding what point lies on the same line", which should be a fun one. So, you should get that the only consumption bundle on the same indifference curve is 8 pizzas and 8 sodas. The answer is E.
5. We need to graph Sparty's budget constraint. We can do so by figuring out how many pizzas he can afford if he uses all his money on pizza and how much soda he can afford if he spends all his money on soda. We find that the answer to those questions can be found by just dividing Sparty's income by the price of pizza and soda, respectively. We get the points (8,0) and (0,16) on the graph, since Sparty can afford 8 pizzas or 16 soda if he spent all his money on either. Connect the two points to get the budget constraint. Then, the opportunity cost of one more slice of pizza is just the absolute value of the slope of the budget curve, which you can find using the rise over run method. The answer is D.
6. The optimal consumption bundle is simply where the budget curve intersects the indifference curve at exactly one point. This is why bringing your ruler was a great idea. You should see that the optimal consumption bundle is 4 pizza and 8 soda, so the answer is A.
7. Now, the price of pizza drops to $2, meaning the budget constraint is going to change. Now, if Sparty spent all his money on Pizza, he can get 32 of them. This means you should now draw the new budget constraint which connects the points (32,0) with (0,16). This new budget line should

conveniently intersect an indifference curve at exactly one point. That point is your new optimal consumption bundle, and it happens to be 16 pizzas and 8 sodas. So we went from 4 pizzas to 16 pizzas, which is an increase of 12 pizzas. The answer is E.

8. (Refer back to the sample midterm 2 guide on how to do this in detail, I will just briefly discuss it here) To find the substitution effect, we want to shift the new budget constraint back to the old indifference curve such that the shifted budget constraint intersects the old indifference curve at exactly one point (remember to keep the shifted budget constraint parallel to the new budget constraint). The shifted budget constraint should intersect the old indifference curve at exactly one point, and the increase in quantity from the amount of pizza from the original consumption bundle of 4 pizzas and 8 sodas to the consumption bundle where the shifted budget constraint intersects with the same indifference curve of 8 pizza and 4 soda (an increase of 4 pizzas) means the substitution effect increased demand for pizza by 4 units. Note, even though this question doesn't ask this, the income effect is just the remaining increase in quantity of pizza demanded, in this case it's 8 pizzas (since the optimal bundle after the price drop of pizza is 16 pizzas and 8 sodas). The answer is A.
9. If income doubled, you can find that the new budget line connects (16,0) and (0,32), corresponding to 16 pizzas and 32 sodas that Sparty can afford if he spends all his income on either. We see that the quantity demanded in the optimal consumption bundle at the point where the budget intersects with the indifference curve at exactly one point of 8 pizzas and 16 sodas. Then, we see that the demand for both pizzas and sodas increased from the original optimal consumption bundle of 4 pizzas and 8 sodas, and thus we see that both pizzas and sodas are normal goods, since the quantity demanded increased with income. Thus, the answer is D.
10. When the price of any goods falls, we see that through the substitution effect consumers will buy more of that good (since the price of it is lower relative to the other good). However, the characteristic of an inferior good is such that when income increases, the quantity demanded of it decreases – and so the income effect will have a negative effect on quantity demanded of the good. Thus, the answer is B.
11. The next few questions may seem scary at first since you probably never seen a question put this way before, but the fact is these are just questions about tax and externalities. If both countries agree to each cut consumption in half and each country sets a tax on oil to do it, for the poor country to cut consumption from 8 to 4 we simply use the wedge method and draw a wedge at Q=4 for the poor country. We see that the length of this wedge is the amount of tax that is needed to reduce consumption to 4. Since the wedge connects the points (4,2) and (4,6), we see that the length of the wedge is 4 and the tax must be $4. The answer is D.
12. Doing the same thing as the last question, we use the wedge method to find that the size of the tax is $8 to decrease consumption from 16 to 8. The answer is A.
13. The total surplus before the tax is the giant triangle that corresponds to consumer surplus. We see that the area of this triangle is 128 ((1/2)*16*16) . (Note that you actually don't need to know this to answer this problem. I just have it on here in case you were curious.) The surplus that's lost from the tax is the triangle with vertices (8,2), (8,10), and (16,2) which has an area of 32. Thus, the change is minus 32, which is E.

14. Here, what I did was just try the answers out. I tried first a $6 tax (since it's the first choice) and see where that got me. With a $6 tax, the poor country will consume 2 gallons of oil and the rich country will consume 10 gallons of oil. Hey look, that's what we want. The answer then is that the same tax has to be $6, since that brings about the wanted reduction in oil consumption. The answer is then A.
15. It may help to draw the wedge again to indicate quotas. The one for the rich country will be at Q=8 and the one for the poor country will be at Q=4. Then, we see that in the rich country, the quota price is $8 (the length of the wedge) and in the poor country, the quota price is $4. To see what the world price will be for one unit of quota, we need to first see that the price of a quota in the poor country is $4 and the price of a quota in the rich country is $8. Then, it makes sense that the rich country will want to buy cheaper quotas from the poor country, until we arrive at an equilibrium price that will be the world price. To do so, if the rich country buys two units of quota from the poor country (so the poor country sells two units of quota to the rich country), then if you draw in the new wedges corresponding to this trade (a wedge for the rich country at Q=10 and a wedge for the poor country at Q=2), then the prices of quota in both countries are equal at $6 (the length of both wedges are 6). Thus, the answer is D.
16. This could have been gotten from my explanation above of question 15, the poor country will sell two allowances to the rich country. The answer is C.
17. Hey look, a question taken directly from the practice midterm. Refer to that guide if you are confused about this. The answer is D.
18. This is taken from the worksheet on supply, the three assumptions that you need for a perfectly elastic long run supply curve are the firms having the same technology, no barriers to entry, and input prices do not change as the industry expands. These are basic assumptions about perfectly competitive firms that needs to hold for our results to be true from analyzing these firms. The answer is C.
19. To find fixed cost we can just look for a convenient point (refer to sample midterm 2 guide if you don't know what I mean), which q=3 appears to be one. So, knowing that ATC=AFC+AVC, we can find that AFC=ATC-AVC=6-3=3. Since AFC=FC/Q, we see that FC=Q*AFC or 3*3=9. So fixed cost is 9. The answer is E.
20. If short run price is 2, then we see that since price=marginal revenue in a perfectly competitive firm, the firm will produce where MR=MC, or in this case where P=MC, and more specifically they will produce where MC is $2. This happens at a quantity of 1. So, the profit is revenue – cost, in this case revenue is the amount of units they are selling (1) times the price ($2), which means the revenue is $2. The cost we can find from the average total cost, which at q=1 is equal to $10. So since total cost = average total cost * quantity, we have total cost = $10*1=$10. So the cost is $10. Now, profit is revenue- cost, so $2-$10 = -$8. The answer is E.
21. The long run price is always going to be where firms have zero profit, which means where MC=minATC happens. This happens at a price of $6, so that's your long run price. The answer is C.
22. Long run output per firm happens also at the point where MC=minATC, except now instead of looking at price you are looking at quantity. We see that in the long run, there are 3 units produced in each firm The answer is A.

23. Draw a horizontal line from where we have our long run price on the left graph to the right graph. This denotes our long run supply curve. We see that the LR supply curve intersects D1 at Q=600. The answer is D.
24. Since the industry quantity is 600 and each firm produces 3 units, it must mean that there are 200 firms in the industry. The answer is C.
25. With the fact that there are 200 firms in the industry, we can now construct the short run supply curve. We can do this by seeing that since each firm produces 1 unit at $2, 2 units at $4, 3 units at $6, and so on, that since all firms do the same thing, 200 firms will produce 200 units at $2, 400 units at $4, and so on. Thus, we can draw in our industry short run supply curve on the graph on the right. The short run supply curve should intersect D2 at a point corresponding to P=$12 and Q=1200. So the answer is E.
26. This is just like the question on the worksheet. Comparing the short run supply curve with the long run supply curve, which you should remember is flat, we see that the price in the long run does not change even as the demand goes from D1 to D2, since the LR supply curve is perfectly elastic. We also see that the intersection of the short run supply curve with D2 is at Q=1200, whereas the intersection of the long run supply curve with D2 is at 1800. So, we can conclude that in the short run, the effect on price is bigger and the effect on industry quantity is smaller than in the long run. The answer is C.
27. Since the world price of widgets is at R, we see that the world price is lower than the domestic price of widgets, which is F (where supply equals demand). So, with free trade (with the world), we see that Econland will import widgets from the world at $1 each. We see that the consumer surplus at a price of one is the giant triangle ARY, with 0 producer's surplus. So, the total surplus in the economy after trade is ARY. Now suppose there is a quota of LN added. If you are confused as to what this means, think of it this way – in free trade, the demand for widgets is at point Y whereas the domestic supply is at point R. The difference, Y-R, is what Econland will import from the world (at $1). By saying that there's a quota the length of LN, we are saying that there is a quota that limits the amount of imports into Econland, so a quota of length LN would mean the most Econland can import is N-L (i.e. the producers are producing at point L, the consumers demanding point N, and since N is still more than L, whatever is left will be imported from the world). We see that with this quota, the consumer surplus is now AKN and producer also now have a surplus of KRL. Which area is lost? The area RLNY. So, the answer is C.
28. Basically, we are being asked for the dead weight loss. This corresponds to the area RLV for the producers and NXY for the consumers, since those are the areas of surplus that are lost because the market is not free. Those areas don't go to anyone (note that the area LNVX does indeed go to someone, so it's not dead weight loss, as you will see in the next question). The answer is then B.
29. What's left is the area LNVX that's been unaccounted for. In the case of a tariff, that box would have gone to the government. But since this is a quota, it becomes a transfer of surplus from Econland to foreign producers allocated with the quota (i.e. the quota owners), so the answer is D.
30. False. If the world price falls to 0, we see that the consumer surplus will be a giant triangle with corners A, 0 and something beyond Z. However, under autarky, the consumer surplus is AHF and

the producer surplus is FHR, even when you add the two together the total surplus is not nearly as much as the giant triangle, which denotes the total surplus if world price was $0, since producer surplus is zero in this case (as domestic producers won't even produce, since their supply curve starts at a price of R). So the answer is B.

31. This is just from the sample midterm and a definition question, the answer is D.
32. This is also from the sample midterm, the answer is A.
33. B and C should right off the bat ring a "I don't think this is a public good" bell, since they are not nonrivalrous or nonexcludable, which is what we need for a public good. Deer hunting on public lands may seem like a candidate, but it's definitely rivalrous since me hunting deer would take away from your consumption of hunting deer. This is a common resource, much like the fish stock example on the sample midterm. So, the answer is A.
34. When a country becomes an importer of a good, that means the good is probably cheaper abroad and so it will hurt the domestic producers, since the foreign producers will basically be selling the same thing for a cheaper price to the domestic consumers. That also means that domestic consumers will gain, since they can now buy stuff for cheaper. The answer is C.
35. This is from the sample midterm and also from your readings. The answer is D.