

## Microeconomics: Key

1. A key assumption in our model of supply and demand is that there are many buyers and sellers so that neither group is able to exhibit market power. This assumption fits the market for milk well. For nuclear missiles, however, there are very few buyers. So a buyer, like the U.S. government is likely to be able to restrict quantity in order to attain a lower, more favorable price.
2. Demand is marginal utility. So the demand curve is flat and always equal to this constant marginal utility.
3. As in class, this implies an upward sloping supply curve.
4. This reduces marginal cost so that firms produce more output at any price. Graphically, supply shifts to the right. Quantity increases. But because demand is flat, the price is unchanged. Were demand downward sloping, the price would have decreased.
5. When the amount of a complement increases, demand increases. When demand shifts up, quantity and price both increase.
6. In this case, the demand curve is vertical. When supply increases (from #4), price decreases but there is no change in quantity.

How #5 changes depends on your reading of the question. If you take it to mean that demand never changes, even when the amount of a complement changes, then there is obviously no effect.

7. Think of “elastic” as meaning sensitivity to changes in price. when the demand curve is flat, small changes in price correspond to large a change in the quantity demanded. Demand is sensitive (elastic) to price changes. When demand is steep, however, change to the price level have small effects on the quantity demanded. Demand is insensitive (inelastic) to price changes.
8. This is the example of a negative externality. In addition to providing private benefits resulting from private costs, the consumption of milk provides a cost to the public in the form of reduced health. Because the private market does not consider this cost, it will produce too much milk. The standard solution to a negative externality is to tax the good or service so that the private costs are equated to the total costs.

9. This is the opposite of #8, it is a positive externality. Because the private market does not consider this positive effect to the public, it will underproduce milk. The solution is the opposite of #8, subsidize the product instead of taxing it.

10. Milk is not a public good. The benefits of its consumption are private. If I consume a unit of milk, you cannot consume the same unit. As a result, there is no problem where households free ride by choosing too little of the good.

11. False. We have discussed numerous counterexamples including externalities, public goods, market power, informational limitations, and a lack of property rights.

The supply curve may be derived by calculating marginal cost while the demand curve may be derived by calculating marginal utility. The following table does so:

Units	Total Cost	Total Utility	Marginal Cost	Marginal Utility
1	\$10	\$1000	\$10	\$1000
2	\$30	\$1800	\$20	\$800
3	\$50	\$2300	\$20	\$500
4	\$80	\$2600	\$30	\$300
5	\$110	\$2800	\$30	\$200
6	\$170	\$2900	\$60	\$100
7	\$240	\$2970	\$70	\$70
8	\$340	\$3000	\$100	\$30
9	\$500	\$3020	\$160	\$20
10	\$1000	\$3030	\$500	\$10

Marginal cost and marginal utility are equal at 7 units where the price is \$70.

13. Never get off on the thirteenth floor.

14. If Interstellar II isn't made by the end of the year then the terrorists have already won.

15. Because electricity and TVs are compliments, higher energy prices should reduce the demand for TVs. Their price and quantity should fall.

16. Yes and no. What if Edmund's Planet is OUR planet? Maybe after the war between human and apes wipes out all civilization?