# Price Theory I TFUs
# Practice Set 12

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1. If the sum (across goods) of all uncompensated own price elasticities is -12, then the sum of all compensated own price elasticities must be -13. (3.1.10, Core 2006)

   **False.** We know that $\sum_i \epsilon_{ij}^M = -12$. Furthermore, from Slustky equation,

   $$\sum_i \epsilon_{ii}^M = \sum_i \epsilon_{ii}^H - \sum_i s_i \eta_i = \sum_i \epsilon_{ii}^H - 1$$

   so the compensated elasticity must be -11, not -13.

2. A breakout of mad cow disease that makes it riskier to consume beef would reduce the consumption of beef more by persons who initially consumed relatively large quantities of beef. (Core 2005)

   **False.** It is possible that those who were consuming a lot of beef the demand is more inelastic. Then even with the increase in price they cannot substitute to other food so consumption will decrease less.

3. In a cross section of firms in a competitive market, more productive firms should have higher profit rates (measured as profits/sales). (4.2.9, Core 2005)

   **True.** The more producdtive firms have lower average cost.

4. A rise in the wage rate of employees may raise the profits of firms in a competitive industry in the short run—before the amount of capital adjusts—but not in a monopolistic industry either in the short or long run. (4.5.7, Core 2008)

   **True.** It can't raise profits in a monopolistic industry because that would imply it is operating at a point that was feasible before but produced less profit. In a competitive industry, a rise in wage rate of employees may raise profits if demand is sufficiently inelastic.

5. A maximum price control on an input used in industry X will lower the market price of X. (4.5.9, Core 2001)

   **False.** A price control will decrease the input price but also reduce the input supply. Therefore, the output of $X$ will decrease and will actually increase the price of $X$.

6. Technological progress that allows each firm in a competitive industry to produce twice as much output from any given level of inputs will reduce prices in the industry more in the long run than in the short run (assuming capital is fixed in the short run) as long as output demand is elastic. (4.7.9, Core 2007)

   **False.** The technological progress shifts the supply curve to the right. This means that the price will have to drop in the short term to ensure equilibrium. But the short-run supply curve is less elastic than the long-run curve; therefore, the short-run curve intersects the demand curve at a lower price than the long-run curve. In other words, price rebounds over time as capital adjusts.

7. With constant returns to scale, the rate of growth of labor productivity will exceed the rate of growth of TFP as long as the capital labor ratio is rising. (4.7.10, Core 2006)

   **True.** Easy to see from the formula:

$$\begin{aligned} \Delta Y &= s_L \Delta L + s_K \Delta K + \Delta TFP \\ \Rightarrow \Delta Y - \Delta L &= (\Delta K - \Delta L)\, s_K + \Delta TFP \end{aligned}$$

8. If the Justice Department allows two firms with market shares of 20% and 30% to merge, we should be more concerned if the combined share of the merged firm is 60% in two years rather than 45%. (4.9.2)

   **False.** Here the major concern is that the merged firm would restrict output. Since mergers are supposed to increase e"ciency, we shouldn't be worried if the new firm has a larger market share than the two firms did separately

9. If the market rental rate for new computers is $800 per year and the purchase price for new computers is $2,000, then individuals expect the price of computers to decline over time if the market interest rate is 5% and physical depreciation is 25% per year. (4.22.4, Final 1998)

   **True.** Given the following equation:

$$P_t = R_t + P_{t+1}\frac{1-\delta}{1+r} \Rightarrow P_{t+1} = 1680$$

   so the price is expected to decline.