# Lecture 18

- Choosing output in the short-run
- Competitive firm's short-run supply curve
- Market supply curve in the short-run

# Short-Run Profit Maximization

- **Conditions:**
  - **MC = P and P > AVC**
- **Producer surplus: (Figure 8.10)**
- **Examples:**
  - **Figures 8.3 and 8.4**

| Output | Price | MC | TC | TR | Profit | MR | TC | Profit | TC | Profit | Price | Profit | Price | Profit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 40 | | 50 | 0 | -50 | | 100 | -100 | 150 | -150 | 30 | -150 | 5 | -150 |
| 1 | 40 | 50 | 100 | 40 | -60 | 40 | 150 | -110 | 200 | -160 | 30 | -170 | 5 | -195 |
| 2 | 40 | 28 | 128 | 80 | -48 | 40 | 178 | -98 | 228 | -148 | 30 | -168 | 5 | -218 |
| 3 | 40 | 20 | 148 | 120 | -28 | 40 | 198 | -78 | 248 | -128 | 30 | -158 | 5 | -233 |
| 4 | 40 | 14 | 162 | 160 | -2 | 40 | 212 | -52 | 262 | -102 | 30 | -142 | 5 | -242 |
| 5 | 40 | 18 | 180 | 200 | 20 | 40 | 230 | -30 | 280 | -80 | 30 | -130 | 5 | -255 |
| 6 | 40 | 20 | 200 | 240 | 40 | 40 | 250 | -10 | 300 | -60 | 30 | -120 | 5 | -270 |
| 7 | 40 | 22 | 222 | 280 | 58 | 40 | 272 | 8 | 322 | -42 | 30 | -112 | 5 | -287 |
| 8 | 40 | 38 | 260 | 320 | 60 | 40 | 310 | 10 | 360 | -40 | 30 | -120 | 5 | -320 |
| 9 | 40 | 45 | 305 | 360 | 55 | 40 | 355 | 5 | 405 | -45 | 30 | -135 | 5 | -360 |
| 10 | 40 | 55 | 360 | 400 | 40 | 40 | 410 | -10 | 460 | -60 | 30 | -160 | 5 | -410 |
| 11 | 40 | 65 | 425 | 440 | 15 | 40 | 475 | -35 | 525 | -85 | 30 | -195 | 5 | -470 |

# Short-Run Supply Curves

- **For an individual firm:**
  - Each firm's MC where MC is above AVC (Figure 8.5)
  - Shifts of a firm's supply curve
    - Change of input prices (Figure 8.6)
    - Change of capacity requirement (Figure 8.7)
- **For an industry:**
  - Horizontal summation of individual supply curves
  - Elasticity: $E_S = (dQ/Q)/(dP/P)$
  - Firms with lower MC's enter the market first (Example 8.3)

# Exercises

- Q3
- Q4
- Q5
- Q6
- Q7