

Suppose a firm has cost $c(y) = y^3$. The firm is a price-taker.

- A) Given the firm's cost function, do you think the firm has a decreasing, increasing, or constant returns to scale production function?
- B) Write down the firm's profit function.
- C) What is the profit maximizing level of y for price $p = 27$?
- D) What is the profit maximizing level of y for any price p ? That is, what is the firm's supply function?
- E) What is this firm's price elasticity of supply?

Suppose a firm has cost $c(y) = 10y$.

- A) Given the firm's cost function, do you think the firm has a decreasing, increasing, or constant returns to scale production function?
- B) Write down the firm's profit function if it is a price taker.
- C) Below what price will this firm produce 0?
- D) What will the firm do with price is above what you found in part C?
- E) Suppose there are many such firms. Sketch the market inverse supply function.
- F) Suppose market demand is given by $100 - p$, sketch the inverse demand on the same graph.
- G) What is the equilibrium price and quantity in this market?
- H) Now suppose there is one monopolist that serves this market. Write down that firms profit function.
- I) What is the quantity the monopolist will produce and what will they charge?
- J) Calculate the dead weight loss when this market is served by a monopolist.