Entry and exit decisions.

- All salvageable or avoidable costs are an opportunity cost of staying in a market.
- No costs are fixed when entry or exit are concerned,
- … though some costs may be sunk (unsalvageable).

Entry example.

Entering the bottled tea market.

- Entry costs $10,000 (researching teas, lining up distributors).
- You can rent a brewing machine for $3000 per month.
- The monthly cost of labor and materials is a function of the number of cases brewed:

$C_{LM} = 500 + 6T + .001T^2$

MC =

Entry example (continued).

- Monthly demand for brewed tea is P = 12 - .001T.

Entry example (continued).

– What if demand declines to P = 10-.001T? Should the firm stay in the market? If not, when should it exit?

Entry intuition and average costs.

Before entry no costs are sunk

Fixed costs of entry F, marginal costs MC(Q)

Project operating profits at optimal Q

- MR(Q*) = MC(Q*)

Enter if TR(Q*) > TC(Q*)

Divide TR(Q) and TC(Q) by Q

- Enter if P(Q*) > AC(Q*)

Long-run equilibrium.

In a *long-run equilibrium*, no new firm wants to enter the market and no existing (incumbent) firms want to exit.

Note: in a short-run equilibrium, each firm is maximizing its profits given that the number of firms in the industry is fixed.

Market structure 1: monopoly.

- One firm faces downward sloping (industry-wide) demand.
- The firm produces as long as MR>MC, stops when MR drops below MC.
- In the short-run, firm will stay open as long as TR>VC (or P>AVC).
- The monopolist may earn positive economic profits in the long run (*i.e. P>AC or TR>TC*), but may not.

Monopolies in the long run.

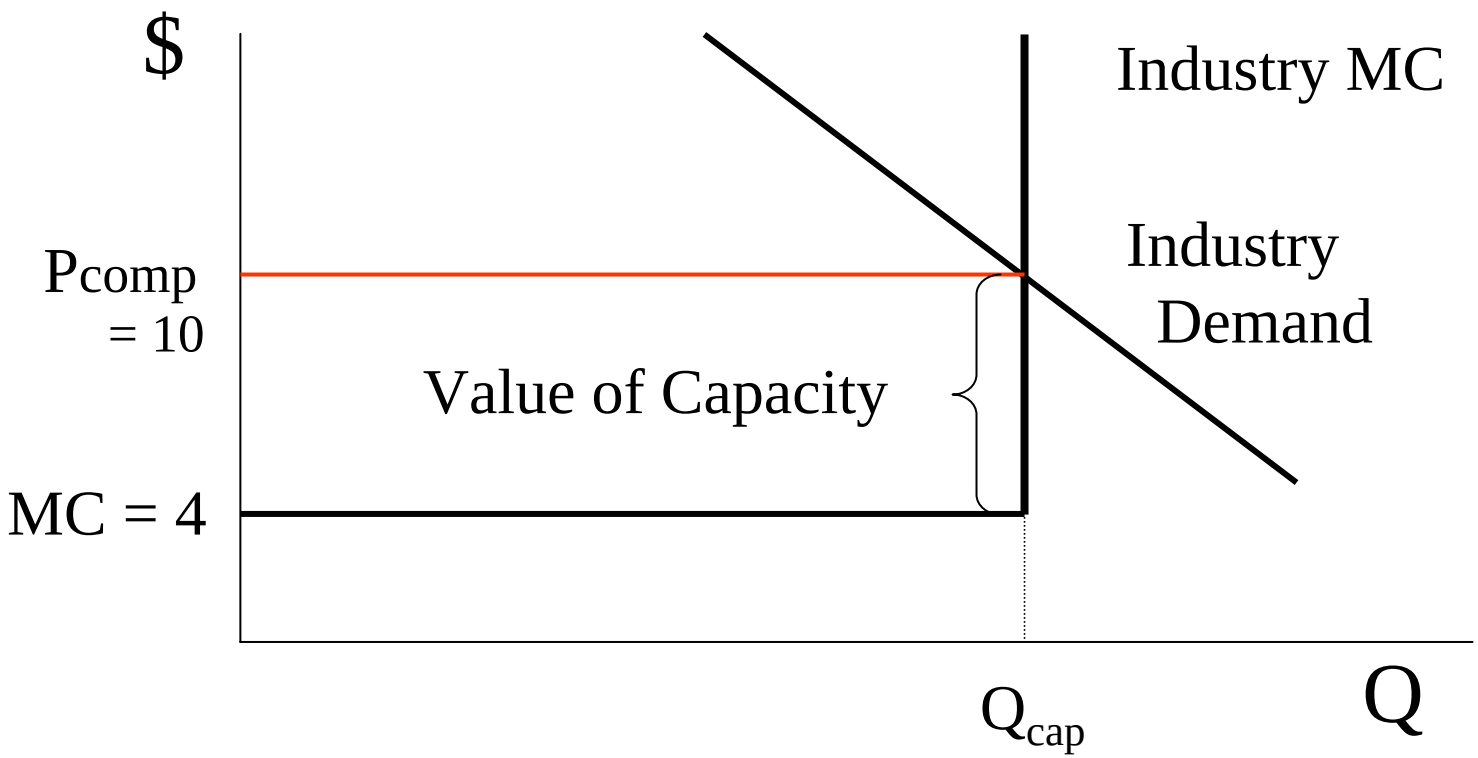
How can a market be dominated by a monopoly in a LR equilibrium?

Market structure 2: perfectly competitive market.

- Many price-taking firms produce as long as MC<P, stop when MC=P.
- In the short run, all firms in perfectly competitive markets can earn economic profits.
- New firms will enter if they can earn economic profits.
- Incumbents will exit if economic profits are negative (P<AC).

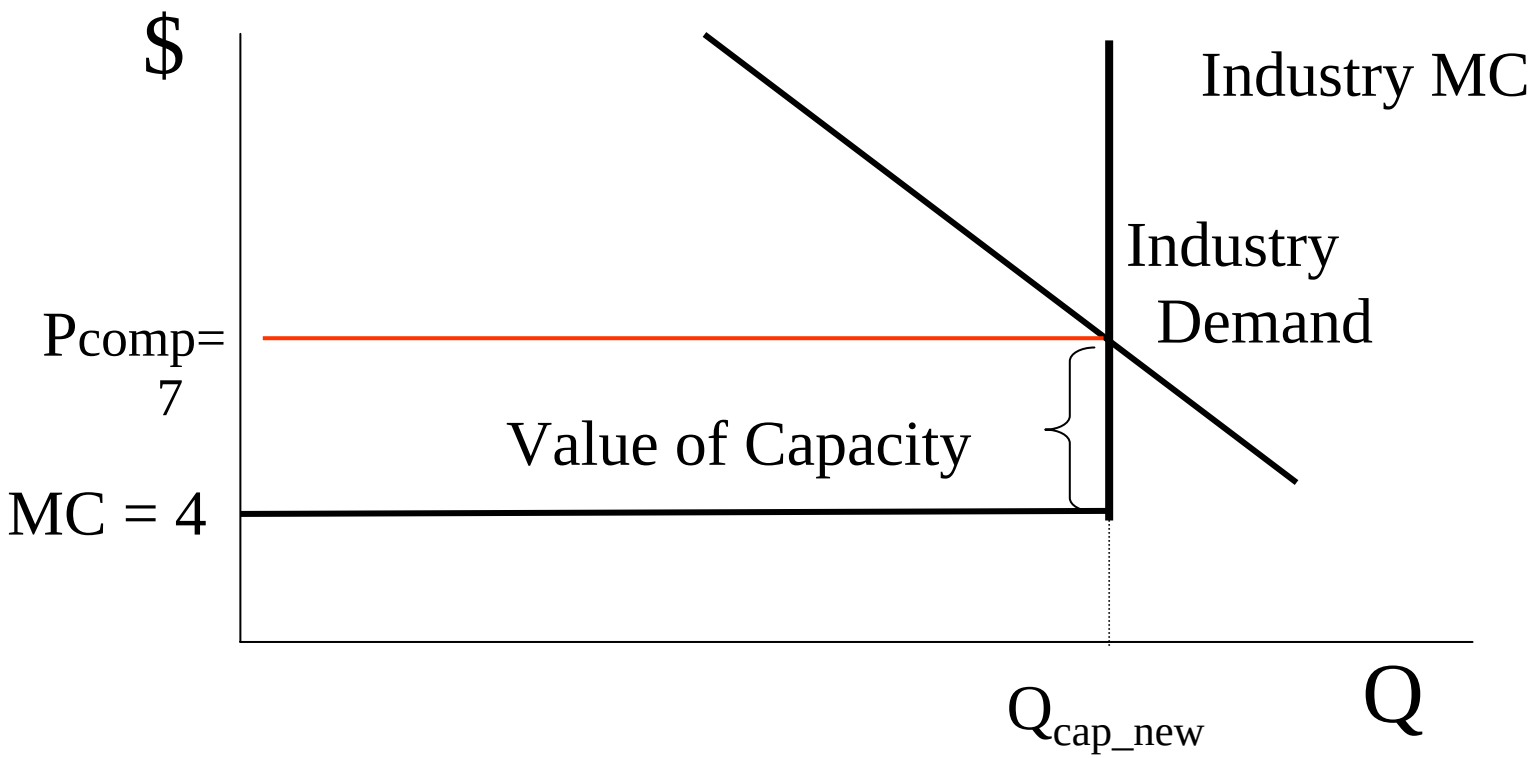
Prices in capacity constrained markets (perfect competition)

Should you add more capacity if capacity cost = 3?

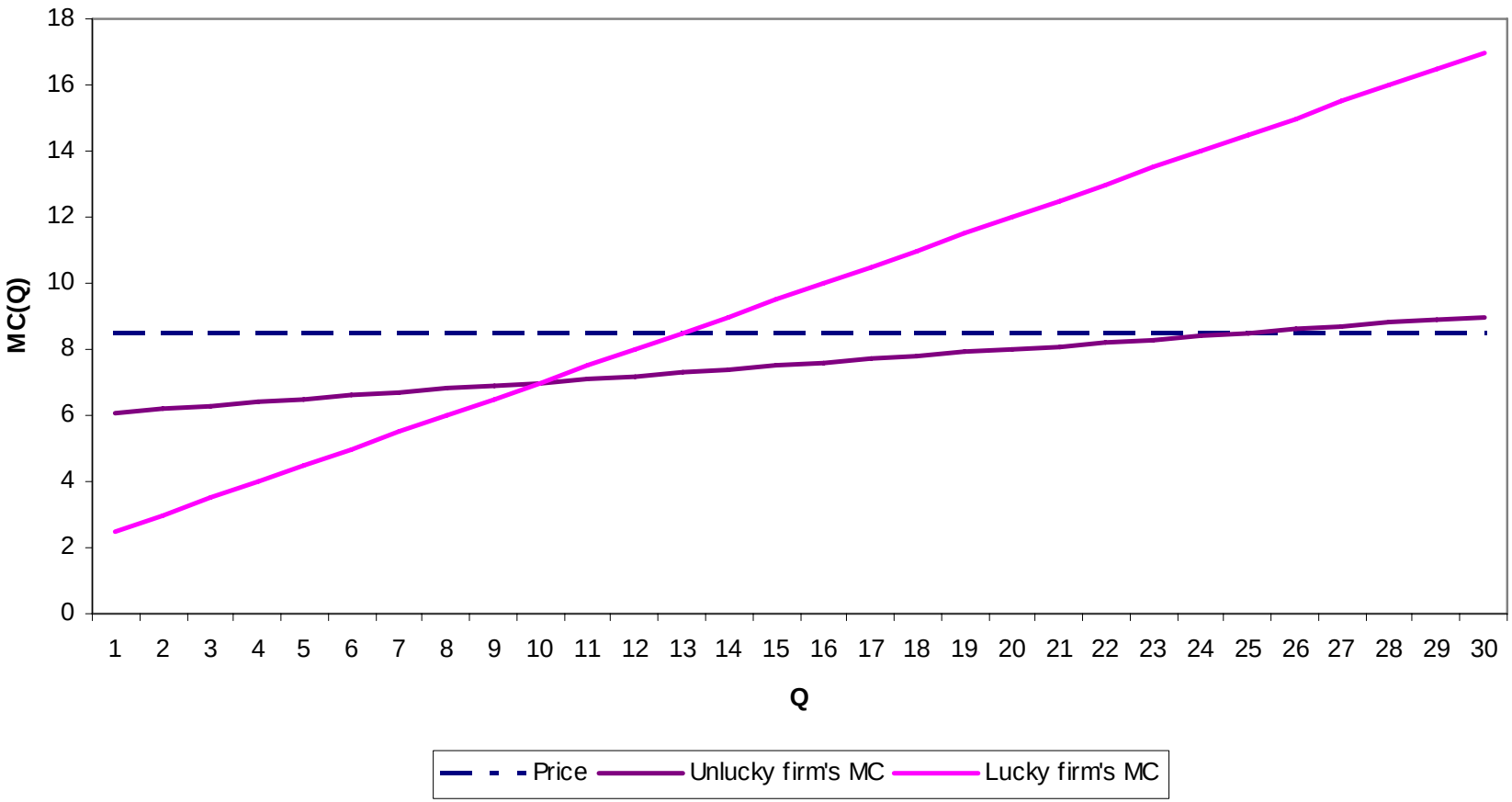


Prices in capacity constrained markets (perfect competition)

Keep adding until value of capacity = cost of capacity



Exit: If avoidable costs are 35, the unlucky firm will exit.



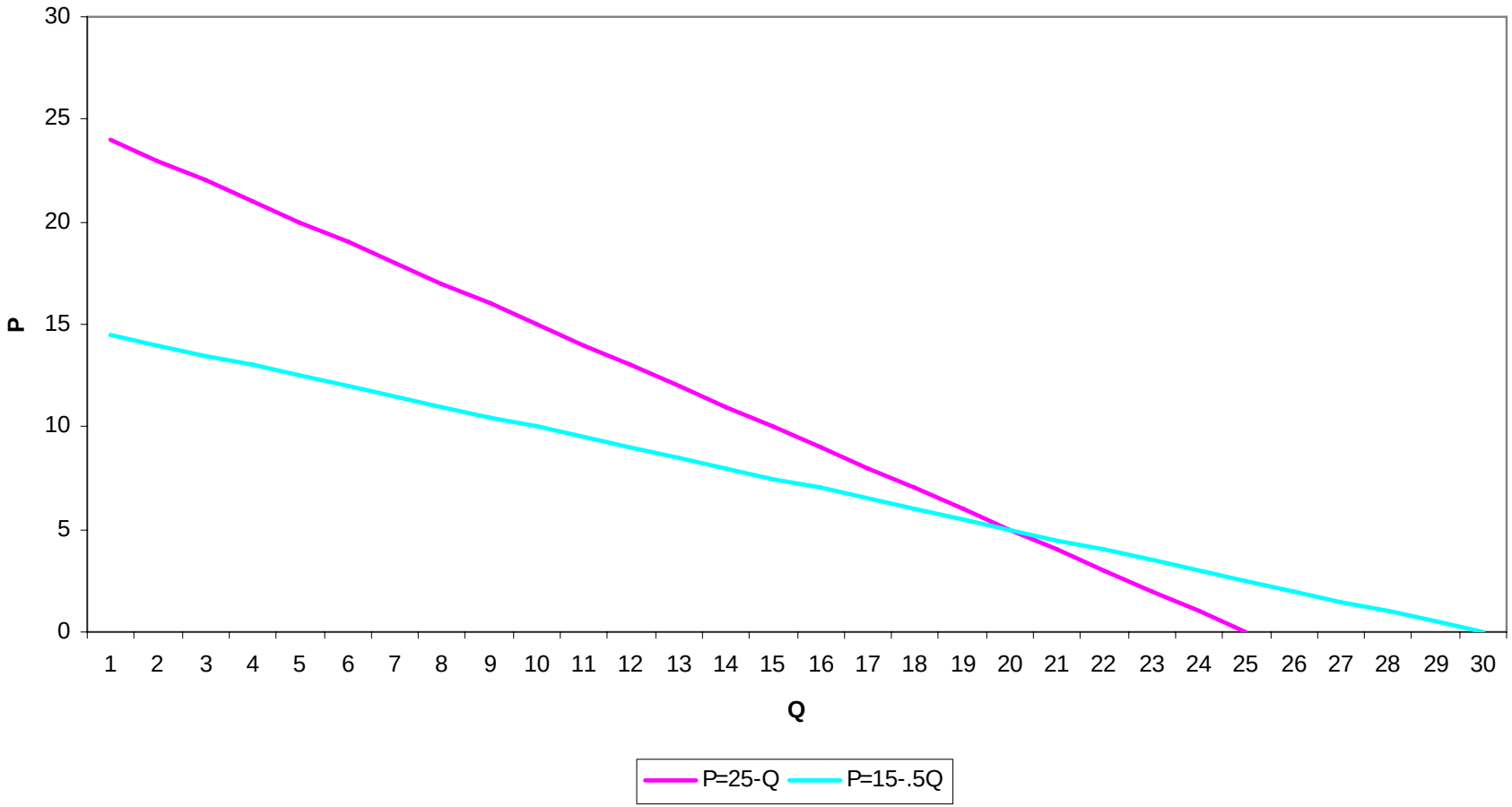
PC markets in the long run.

- P=min(LRAC).
- Firms will earn zero ***economic*** profits.

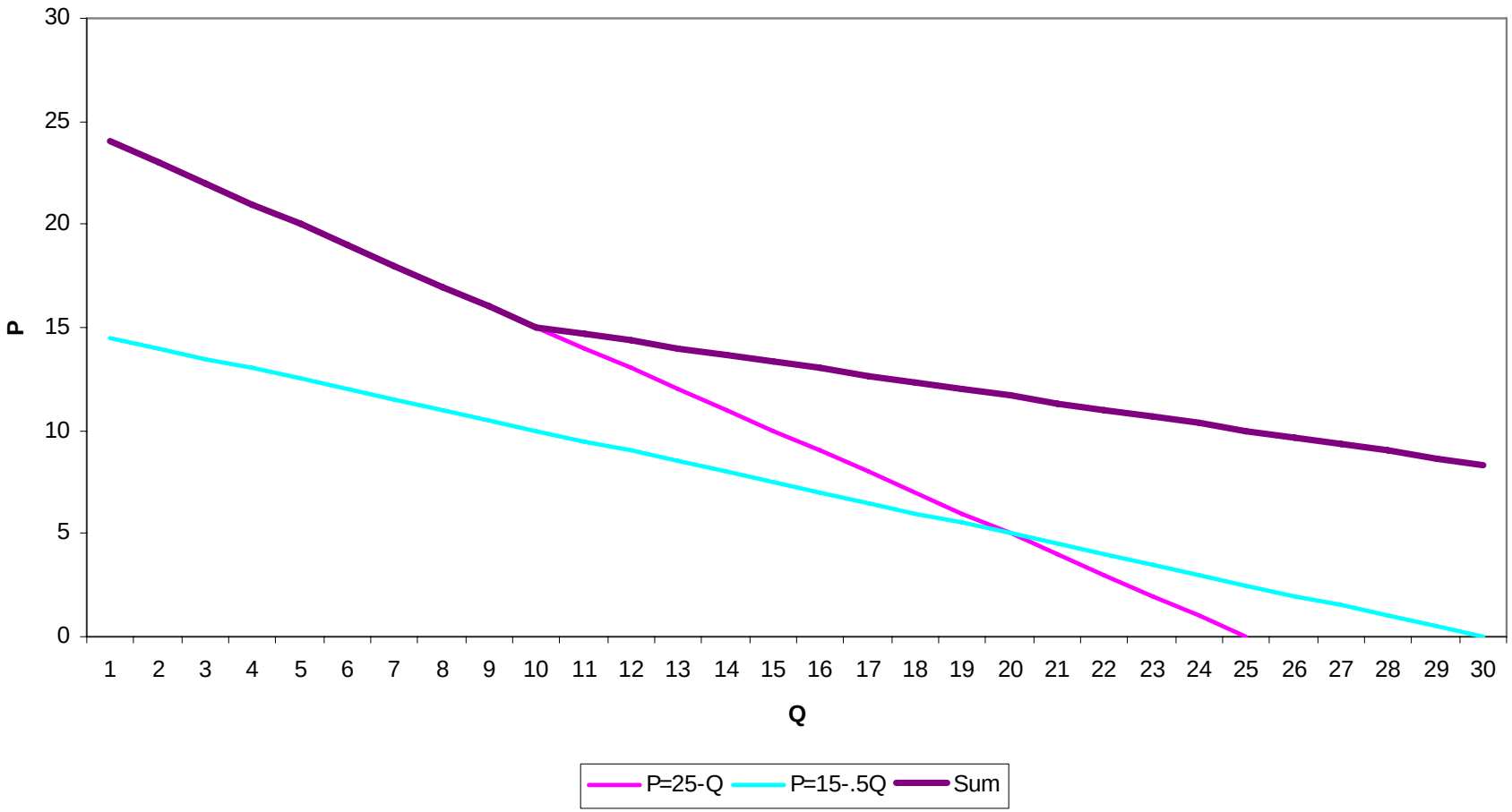
Market structure 3: dominant firm & a competitive fringe.

- "Fringe" firms act as price takers.
- Examples: fringe firms are gov't owned (hospitals), very small (Linux).
- Dominant firm faces a *residual demand curve* after others' production.
- Dominant firm maximizes profits on the residual demand curve.
- Fringe firms produce until MC=P, where P is set by the dominant firm.

Two demand curves.



Aggregate demand is the horizontal sum of the two curves.



Calculating aggregate demand.

D1: $P = 25 - Q$

D2: $P = 15 - .5Q$

Rewrite in terms of Q:

$Q_1 = 25 - P$

$Q_2 = 30 - 2P$

Sum:

$Q_{TOT} = 55 - 3P$

Rewrite in terms of P:

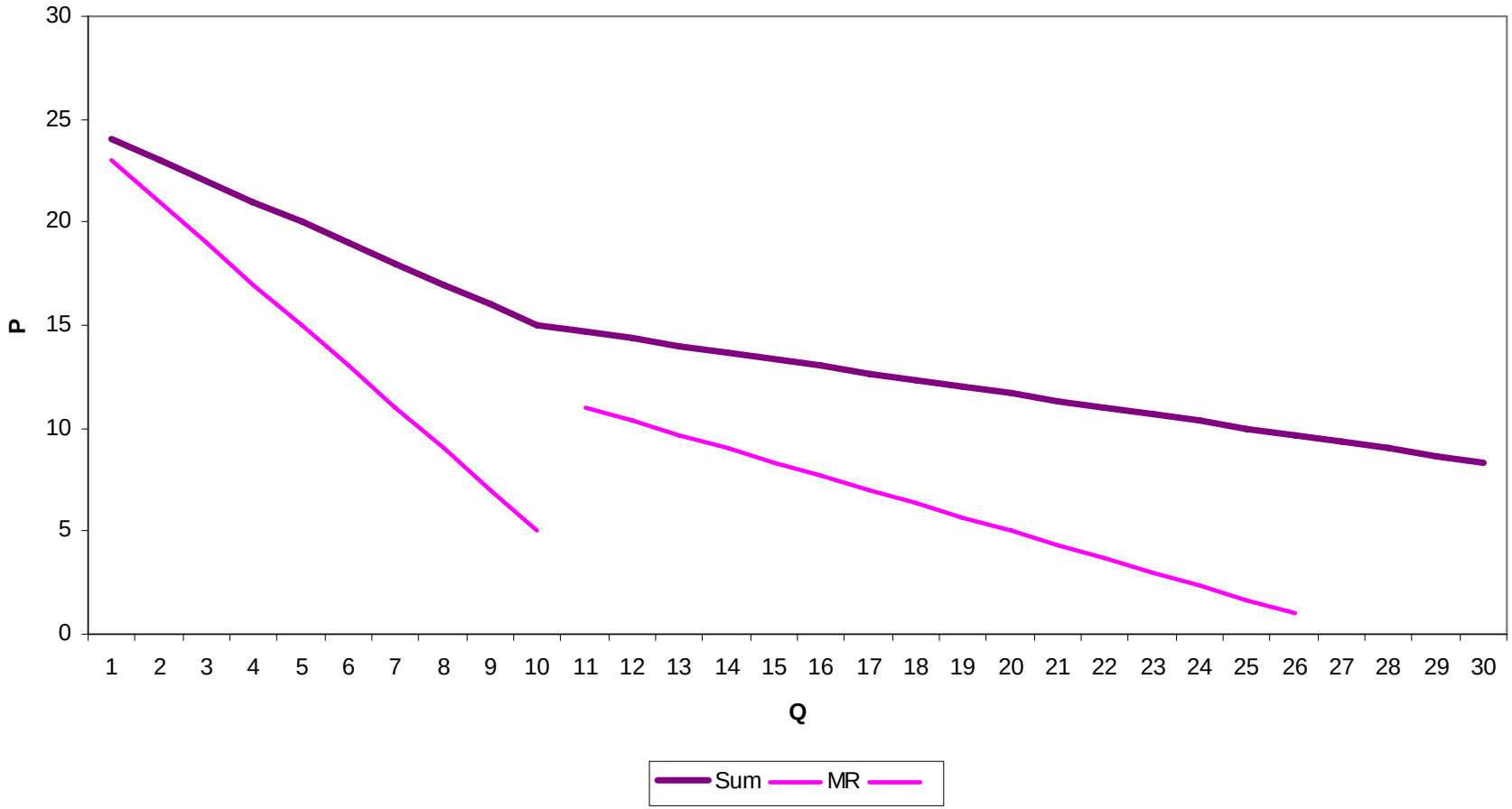
$P = 18.33 - .33Q$

Beware of negative demand levels.

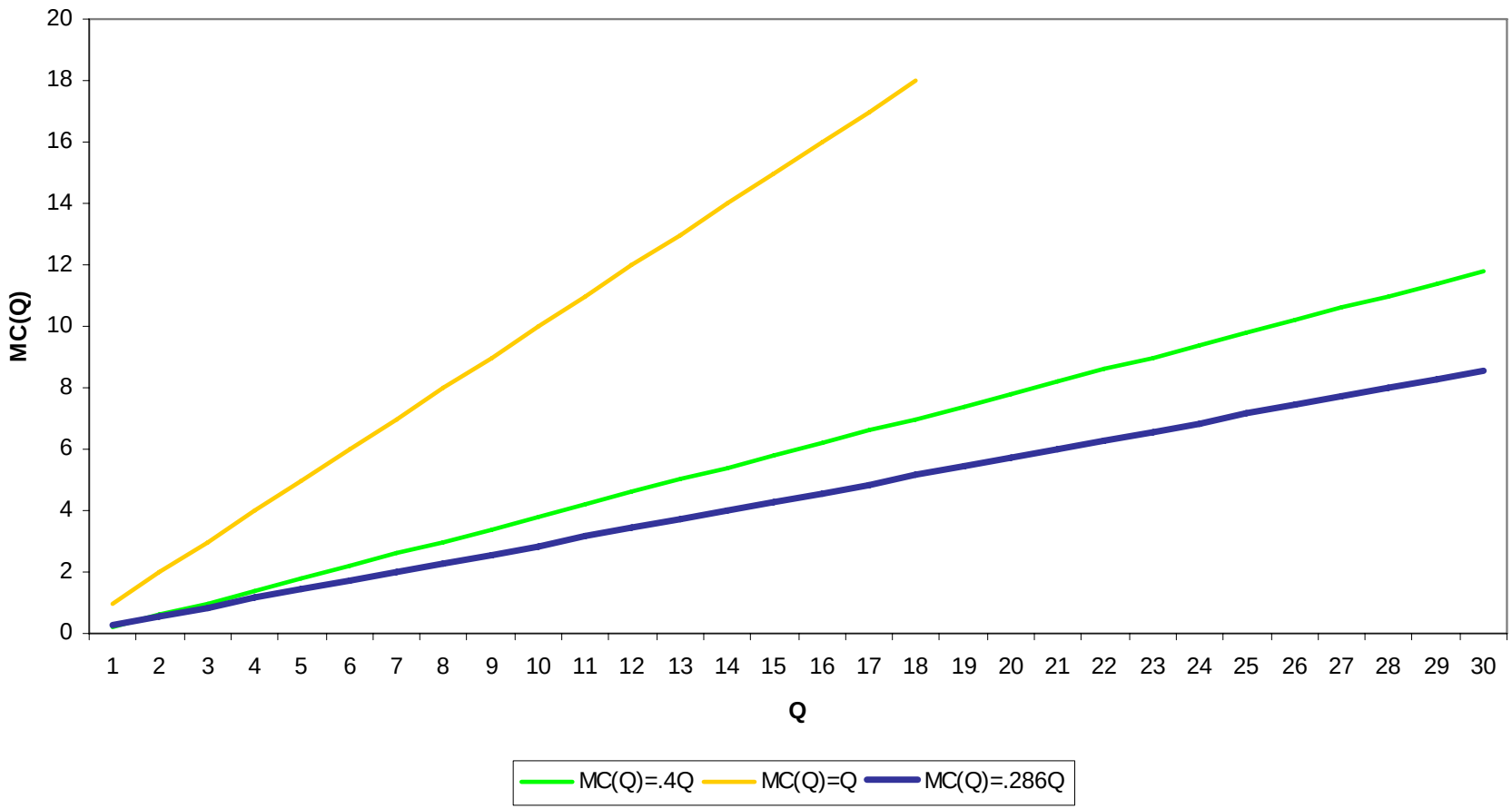
$P = 25 - Q$ for $P > 15$

$= 18.33 - .33Q$ for $P \leq 15$

MR with a kinked demand curve.



Aggregating marginal cost curves.



Calculating aggregate supply.

MC1: MC = .4Q MC2: MC = Q

Rewrite in terms of Q:

Q = 2.5MC Q = MC

Sum:

Q = 3.5MC

Rewrite in terms of MC:

MC = .28Q