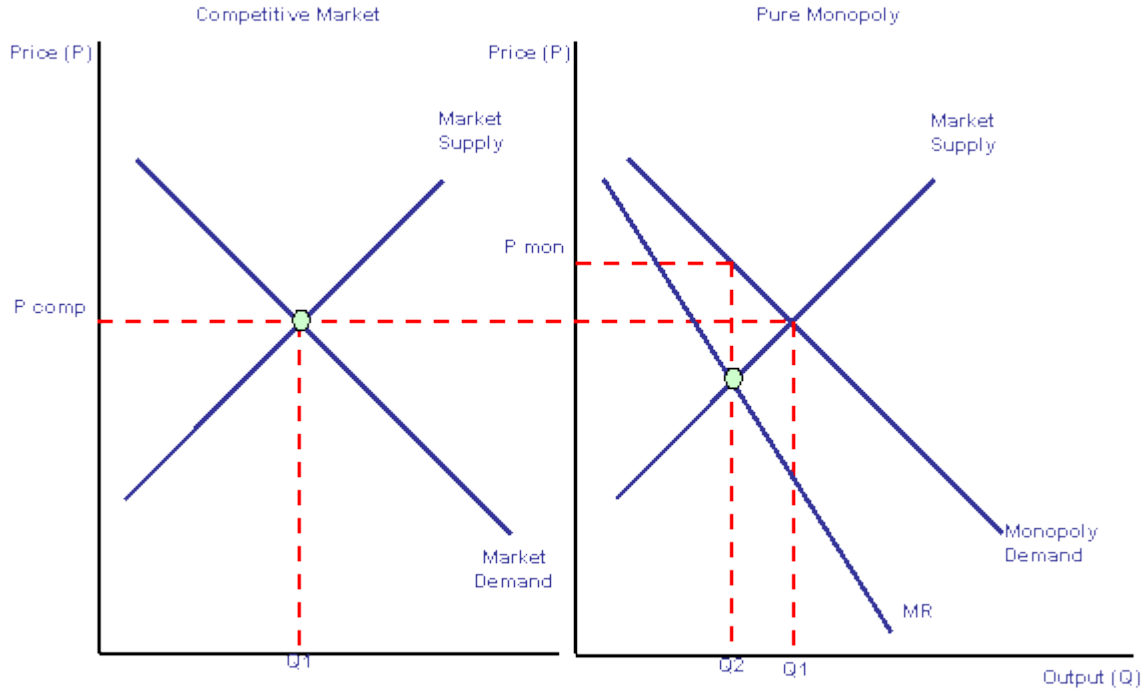
Answer on Question #42227, Economics, Microeconomics

TC = 80 + 0.5Q², P = 40 - 1.5Qd
a) To calculate the profit maximizing quantity for the monopolist, we should find the point, where MR = MC.
MR = TR' = (P*Q)' = (40Q - 1.5Q^2)' = 40 - 3Q
MC = TC' = Q
40 - 3Q = Q
4Q = 40
Q = 10 units
We find profit maximizing price from the demand curve:
P = 40 - 1.5*10 = $25

b) Under perfect competition MR = MC = P, MR = D.
So, D = MC, 40 - 1.5Q = Q
3.5Q = 40,
Q = 40/3.5 = 11.43 units = 12 units
P = 40 - 1.5*12 = $22

c) Draw the results from parts (a) and (b) above in a diagram and calculate the dead weight loss associated with the monopoly.



P(for mr=mc) = 40 - 3*10 = $10
Deadweight loss = 0.5*(Pmon - P(for mr=mc))*(Qcomp - Qmon) = 0.5*(25 - 10)*(12 - 10) = $15

d) Imagine that the monopolist produced one more unit than Qm. The consumer surplus from that unit would be the difference between the demand curve and the price for that unit. Now imagine that the monopolist produced all of the additional units it would take to make the efficient quantity. The area of the blue triangle represents the additional surplus that consumers would get if the market were efficient. In other words, the area of the triangle is the loss in consumer surplus that results from the monopolist's under-production.

This under-production and the loss of consumer surplus associated with it are problems inherent with all of the imperfectly competitive markets.