1. Office building maintenance plans call for the stripping, waxing, and buffing of ceramic floor tiles?  
This work is often contracted out to office maintenance firms, and both technology and labor requirements are very basic. Supply and demand conditions in this perfectly competitive service market in New York are:  
  
QS = 2P - 20  
(Supply)  
  
QD = 80 - 2P  
(Demand)  
  
where Q is thousands of hours of floor reconditioning per month, and P is the price per hour.  
  
Determine the market equilibrium price/output combination algebraically and graphically.   
  
For the graph, use prices: 10, 20,30,40,50, 60, 70,70,80,90  
  
and Quantities: 5, 10, and 15,20,25,30,35,40,45  
  
1. A. Algebraically determination of equilibrium price and output combination.   First, we know at the equilibrium point, quantity demanded equal quantity supplied. So we have to solve for equilibrium price and quantity by setting Qs=Qd.  
2P-20=80-2P.  
4P = 100  
P = 25  
Second, solve for Q by plugging P into either equation  
ƐQS=2(25)-20=50-20=30       ԑQd=80-2(25) =80-50=30  
Q=30  
The equilibrium Price and Quantity are $25/hr and 30,000 hours per month  
B.   Demand and supply schedule for the given prices. I just plug in

the given prices to the equation.  
Price         ԑQd         ɛQs  
10               60         0  
20               40         20  
30               20         40  
40               0             60  
50           -20             80  
60             -40           100  
70             -60           120  
80             -80           140  
90             -100         160  
Now, I plot those points on a graph, See attached graph on B refer Excel attachment and you'll see the lines intersect at P=25 and Q=30.  
  
The figure below shows a firm in a perfectly competitive market;  
  
  
  
a. The firm will go out of business at the point below the out point where average variation cost AVC and Marginal cost MC curves joint; which is below b (p2; Q8) in this case .Thus the firm go out of the business at point a ( p1 ;Q5)  
  
b. The firm `s long run supply curve  
The portion of the marginal cost curve above b (p2; Q8) its intersection with the average  
variable cost curve is the supply curve for a firm operating in a perfectly competitive market. (The portion of the MC curve below its intersection with the AVC curve is not part of the supply curve because a firm would not operate at price below the shut down point)