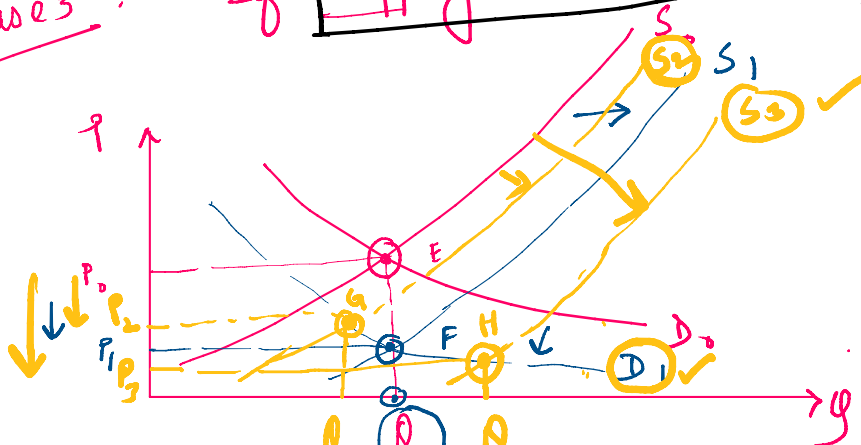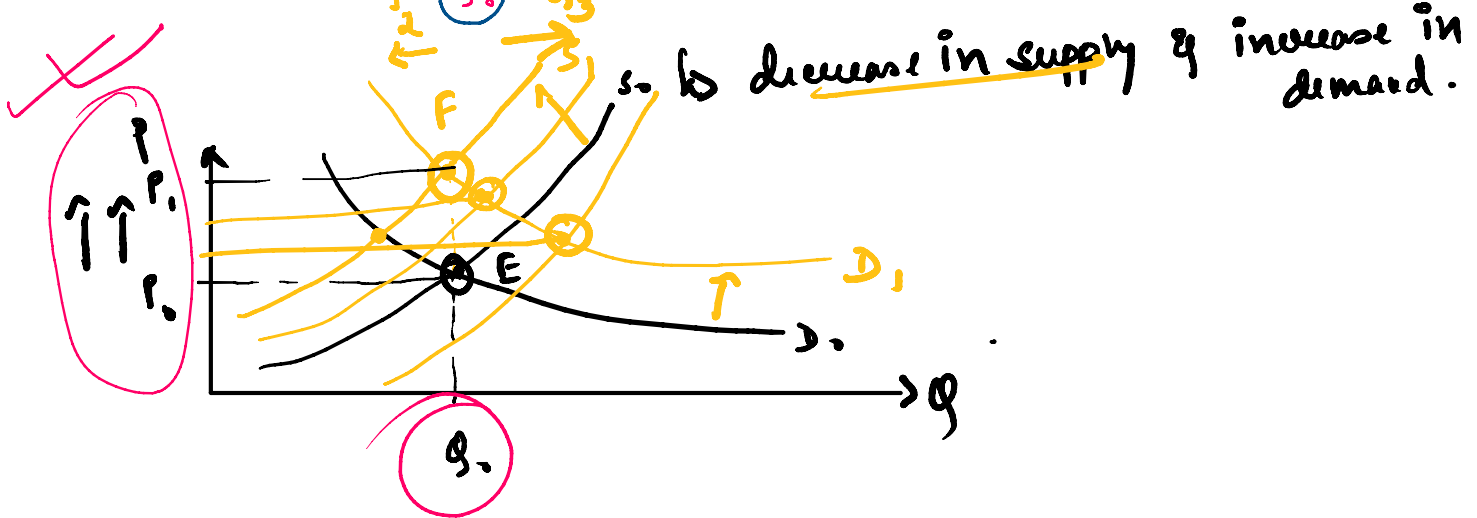Continuation → Market equilibrium

change in demand and supply simultaneously :
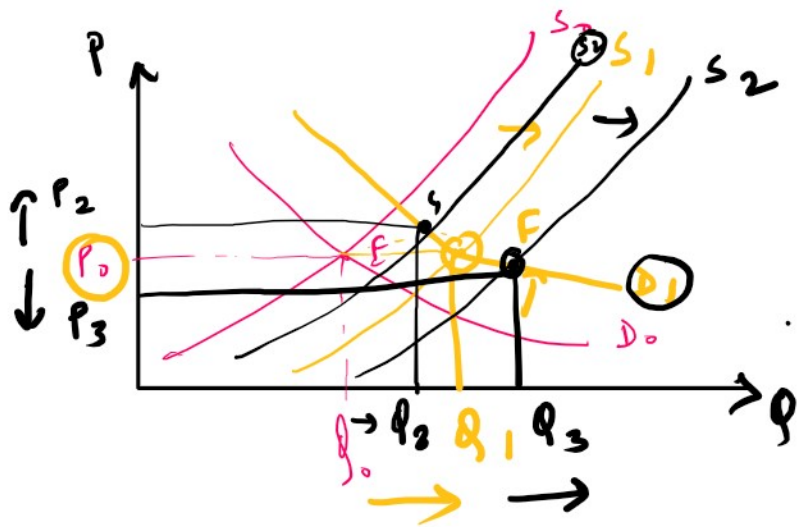
Case 3 :   If supply increases and demand decreases.

(opposite change in DD and ss)

Conclusion:

equilibrium quantity
cannot be determined
— uncertain
equilibrium price
will always decrease.

so to decrease in supply & increase in demand.

Case 4 :   change in demand and supply in the same direction.

(a)   let us increase both
dd and ss.

P ↑

S_2 S_1, S_2

conclusion:
if dd and ss

If dd and ss changes simultaneously in the same direction then equilibrium quantity can be determined - certain

But, the equilibrium price cannot be determined - uncertain

(ie, itremains same, ↑ses or ↓ses).

Application :

① Market for Rental Apartments.

{ Mortgages are more difficult to qualify for due to the housing market crash. }

Market for,

② Bottled water in Japan.

(The Japanese earthquake and resulting tsunami
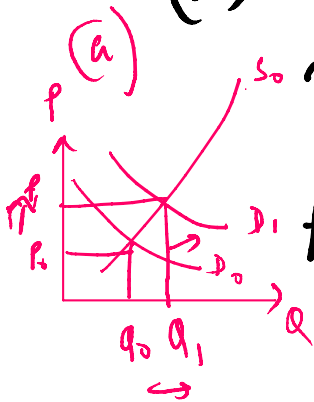...... bottled

The Japanese earthquake and resulting tsunami destroy (stores) of bottled water and bottled water (plants) as well as damage infrastructure that delivers clean water to (Japanese households).

↳ supply

↓ demand

(*) Case 3 as explained above (solution)
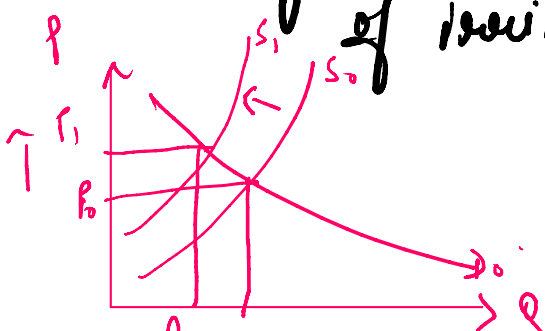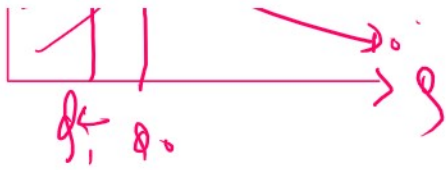
(3) Use a supply & demand diagram to analyse the following scenarios:

(a) The economic downturn has led to more people staying home to watch movies, rather than go to a movie theatre. Show how this change in behaviour affects the mkt for microwave popcorn.
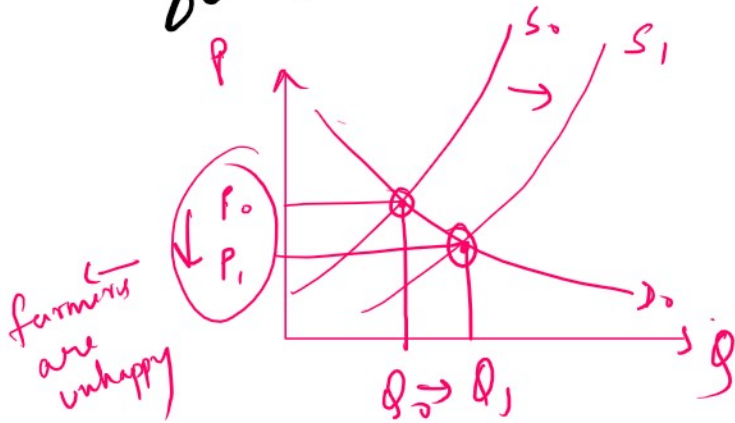
(a)

(b) Suppose that drought conditions in agricultural region increases the cost of irrigation, how would this affect the mkt for fruits & vegetables

(c) The New York times recently reported on ==tech advances== leading to an increa in number of female cows. Female cows are valuable to farmers because they can be used to produce milk. However as farmers now have more female cows available to produce milk, they are not happy. Use a proper dd & ss diagram for the milk mkt to explain this scenario.

farmers are unhappy

S_0 S_1

P_0 P_1

D_0

$Q_0 \rightarrow Q_1$

Q4. Suppose that the market for milk can be represented by the following equations:

Demand: $P = 12 - 0.5 Q_D$

$P = 0.1 Q$

Demand:

Supply! $P = 0.1 Q_s$

(millions of gallons)

(a) Calculate the equilibrium price and quantity of milk.

(b) To help dairy farmers, the gov't sets a minimum price of \$2.50 per gallon of milk what is the new quant of milk sold

(c) Calculate the consumer surplus & producer surplus change after the price support. Also calculate the dead weight loss if any.

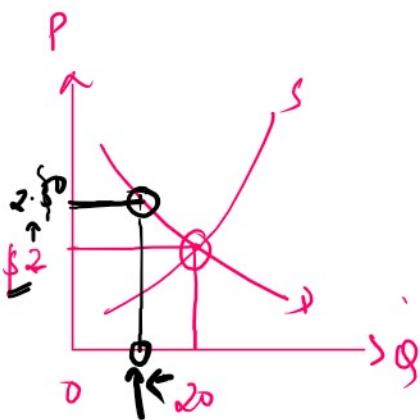(a) In equilibrium   Demand = Supply

$$12 - 0.5 Q = 0.1 Q$$

$$0.6 Q = 12$$

$$Q = 12/0.6$$

$$= 20 \text{ million gallons.}$$
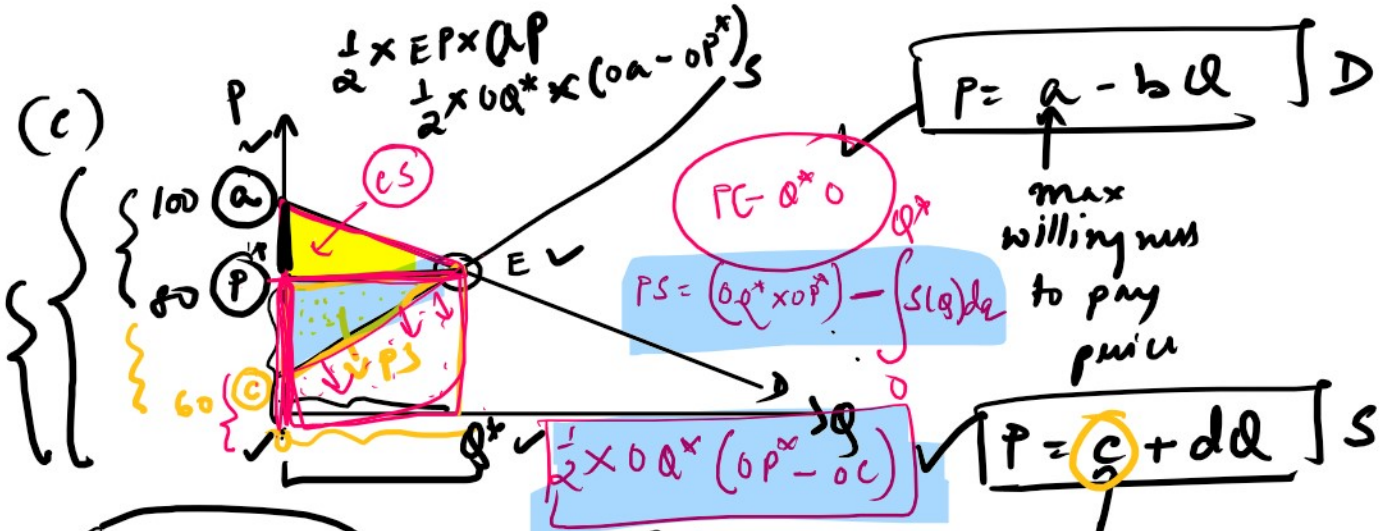
∴ equil price is $P = 0.1 (20)$

$$= \$2.$$

(b) $P = 12 - 0.5 Q$

$$2.50 = 12 - 0.5 Q$$

$$Q = \frac{9.50}{0.5} = 19 \text{ million gallon}$$

(c)

$$\frac{1}{2} \times EP \times \Delta P$$
$$\frac{1}{2} \times OQ^* \times (Oa - OP^*)$$

$P = a - bQ \quad]D$

max willingness to pay price

$PC - Q^* O$

$PS = (OQ^* \times OP^*) - \int S(Q) dQ$

$P = c + dQ \quad]S$

min acceptance price by sellers

$$\frac{1}{2} \times OQ^* \times (OP^* - OC)$$

□ OPEQ

$CS = \left(\text{trap } O\,a\,e\,Q\right) -$

$= \text{area } \triangle\, aPE$

$$= \int_{0}^{Q^*} D(Q)\, dQ \quad - \quad OP^* \times OQ^*$$

or specifically in case of linear demand curve

area of $\triangle e = \frac{1}{2} \times \text{base} \times \text{height}$

$$CS = \frac{1}{2} \times OQ^* \times (Oa - OP^*).$$

$$PS = (OP^* \times OQ^*) - \int_{0}^{Q^*} S(Q)\, dQ.$$

In case of linear SS curve, area $\triangle PCE$

$$= \frac{1}{2} \times OQ^* \times (OP^* - OC)$$