Equilibrium of Supply and Demand

S(x) = supply function
S(x)= amount of product that suppliers are willing to produce when the price is x dollars

When price increases, supply _____; slope is _____

D(x) = demand function
D(x) = amount of product that consumers are willing to buy when the price is x dollars.

When price increases, demand _____; slope is _____.

Equilibrium occurs when Supply = Demand

1) Set supply function = demand function
2) Solve for x to find price when supply = demand
3) Substitute equilibrium price into supply function or demand function to find amount of the produce that is produced by suppliers and bought by consumers at the equilibrium point

A company makes and sells cardboard puzzles and wooden puzzles for children.
x = the price of puzzles y = the number of puzzles

For wooden puzzles:
the supply function is $y = S(x) = 80x - 900$ and the demand function is $y = D(X) = 1200 - 70x$

a. How many wooden puzzles are they able to make when the price is $15?
How many wooden puzzles are consumers willing to buy when the price is $15?
Does supply exceed demand or does demand exceed supply?
b. How many wooden puzzles are they able to make when the price is $12?
How many wooden puzzles are consumers willing to buy when the price is $12?
Does supply exceed demand or does demand exceed supply?
c. Find the equilibrium point
d. Graph the supply and demand functions and label the (x,y) coordinates of the equilibrium point.
e. For every $1 increase in price, what happens to the supply of wooden puzzles?
f. For every $1 increase in price, what happens to the demand for wooden puzzles?

For cardboard puzzles:
the supply function is $y = S(x) = 60x - 120$ and the demand function is $y = D(X) = 480 - 40x$

a. How many cardboard puzzles are they willing to make when the price is $4?
How many cardboard puzzles are consumers willing to buy when the price is $4?
Does supply exceed demand or does demand exceed supply?
b. How many cardboard puzzles are they able to make when the price is $7?
How many cardboard puzzles are consumers willing to buy when the price is $7?
Does supply exceed demand or does demand exceed supply?
c. Find the equilibrium point
d Graph the supply and demand functions and label the (x,y) coordinates of the equilibrium point.
e. For every $1 increase in price, what happens to the supply of cardboard puzzles?
f. For every $1 increase in price, what happens to the demand for cardboard puzzles?