

$$Q^D = 10 - \frac{1}{2}P + 2I$$

a) Suppose $I = 5$. Enter that into the above equation and rearrange to get the equation that is plotted out as the demand curve.

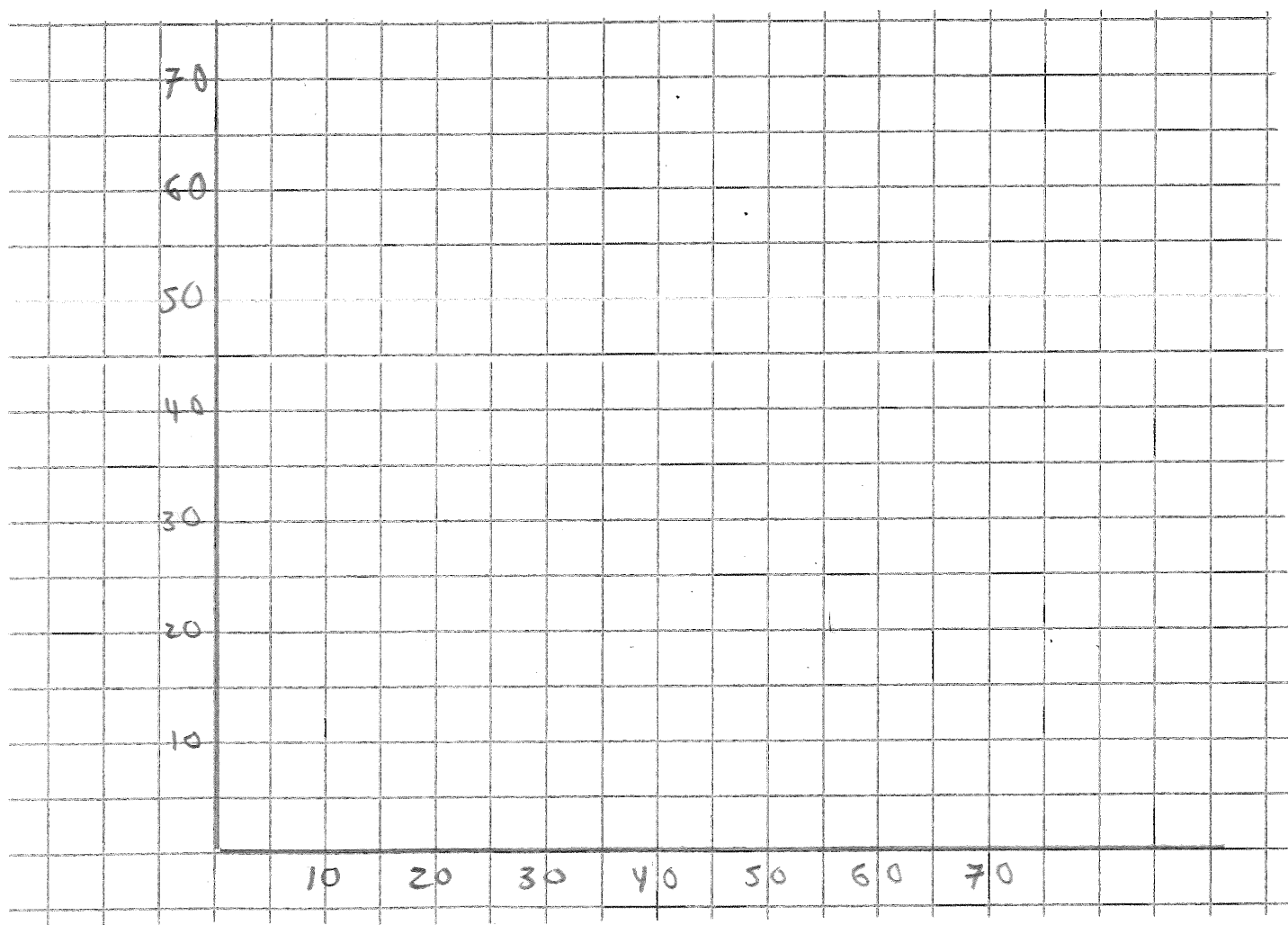
$P = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} Q^D$ Plot this curve on the graph below. Label the curve " D_a "

b) Now suppose $I = 10$. Enter *that* and rearrange to get the equation that is plotted out as the demand curve.

$P = \underline{\hspace{1cm}} - \underline{\hspace{1cm}} Q^D$ Plot this curve on the same graph below. Label the curve " D_b "

c) Draw an upward-sloping supply curve on the graph below, anywhere you like. Label the curve "S."

d) Consider the equilibrium price P^* that makes $Q^S = Q^D$. Does an increase in income I raise the equilibrium price, lower it, or have no effect on it?



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2) Now consider another demand equation with a constant (like 10 in the demand equation above), a coefficient on P (like $-1/2$ in the demand equation above), and a coefficient on I (like 2 in the equation above). But now I don't want to be specific about the values of the constant and the coefficients. So I just write:

$$Q^D = a - bP + cI$$

I also don't want to be specific about the value of I .

a) Rearrange the demand equation to get the equation that is plotted out as the demand curve.

b) Imagine plotting this demand curve. What would the intercept be? Note: your answer is not going to be a number. It's going to be a collection of letters.

What would the slope be? Again, your answer is not going to be a number.

c) What would happen to the demand curve if income I gets bigger? Does the demand curve shift up (often called "out"), or down (often called "back"), or stay in the same position?

3) Take the same demand equation $Q^D = a - bP + cI$. Combine it with a supply equation written in the same vague way:

$$Q^S = d + eP$$

a) Using the supply equation together with the demand equation, solve for the equilibrium price P^* . Your answer is going to be a collection of letters.

$P^* =$

b) What does your answer to b) imply about the relationship between income I and the equilibrium price P^* ? That is, does an increase in income tend to raise P^* or lower P^* ?

Explain how your answer to b) tells you that.

c) Suppose income increases by exactly one unit, like from 10 to 11 or from 5 to 6. What is the resulting change in P^* , exactly, in terms of the letters?