Introduction to Microeconomics - NPTEL

TA: Arti Agarwal

Week 4: *Taxes, Consumer Theory: Budget, Utility*

Who pays the tax?

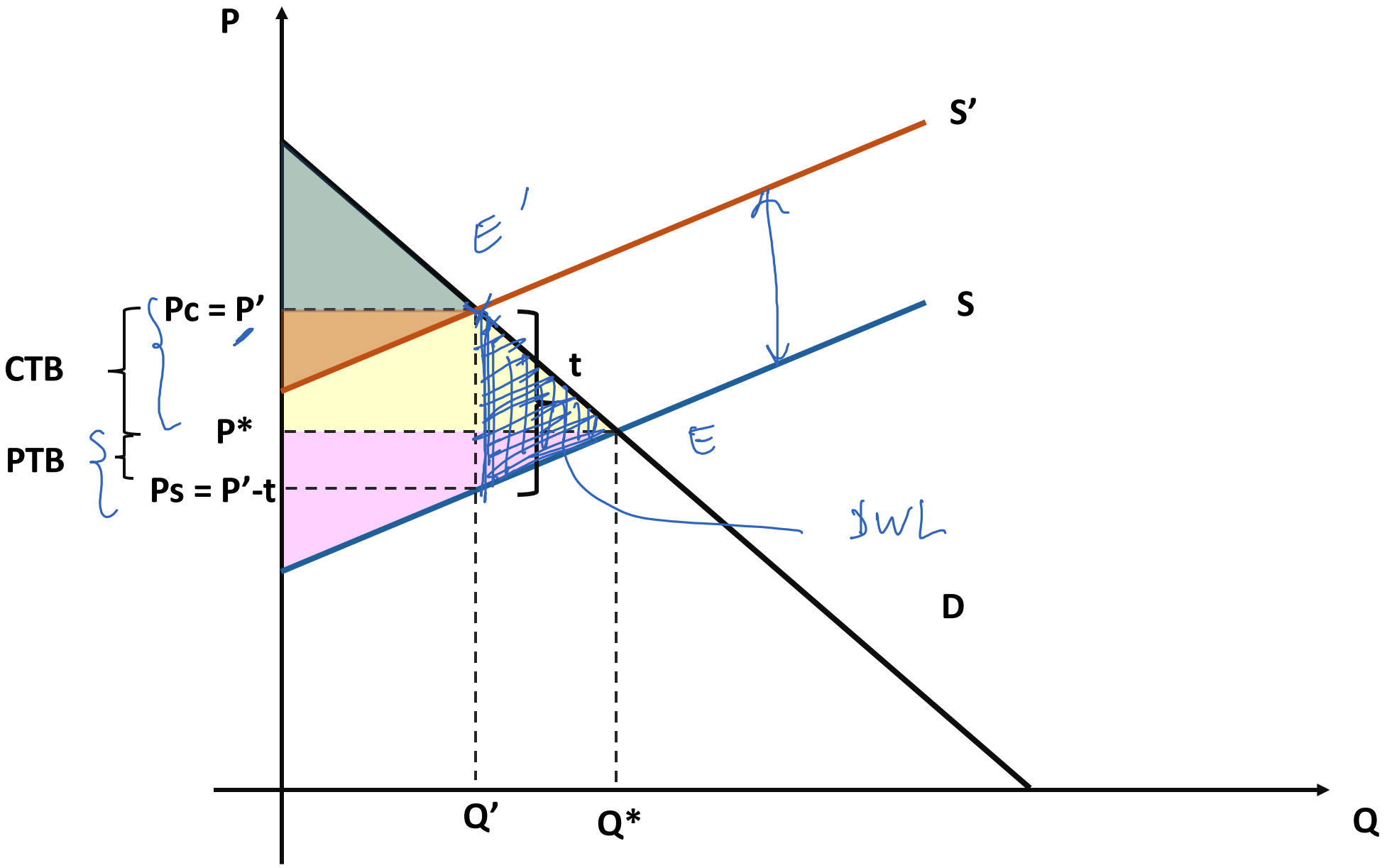
Consumer Tax Burden

$$CTB = (P_{post} - P_{pre}) + \tau$$

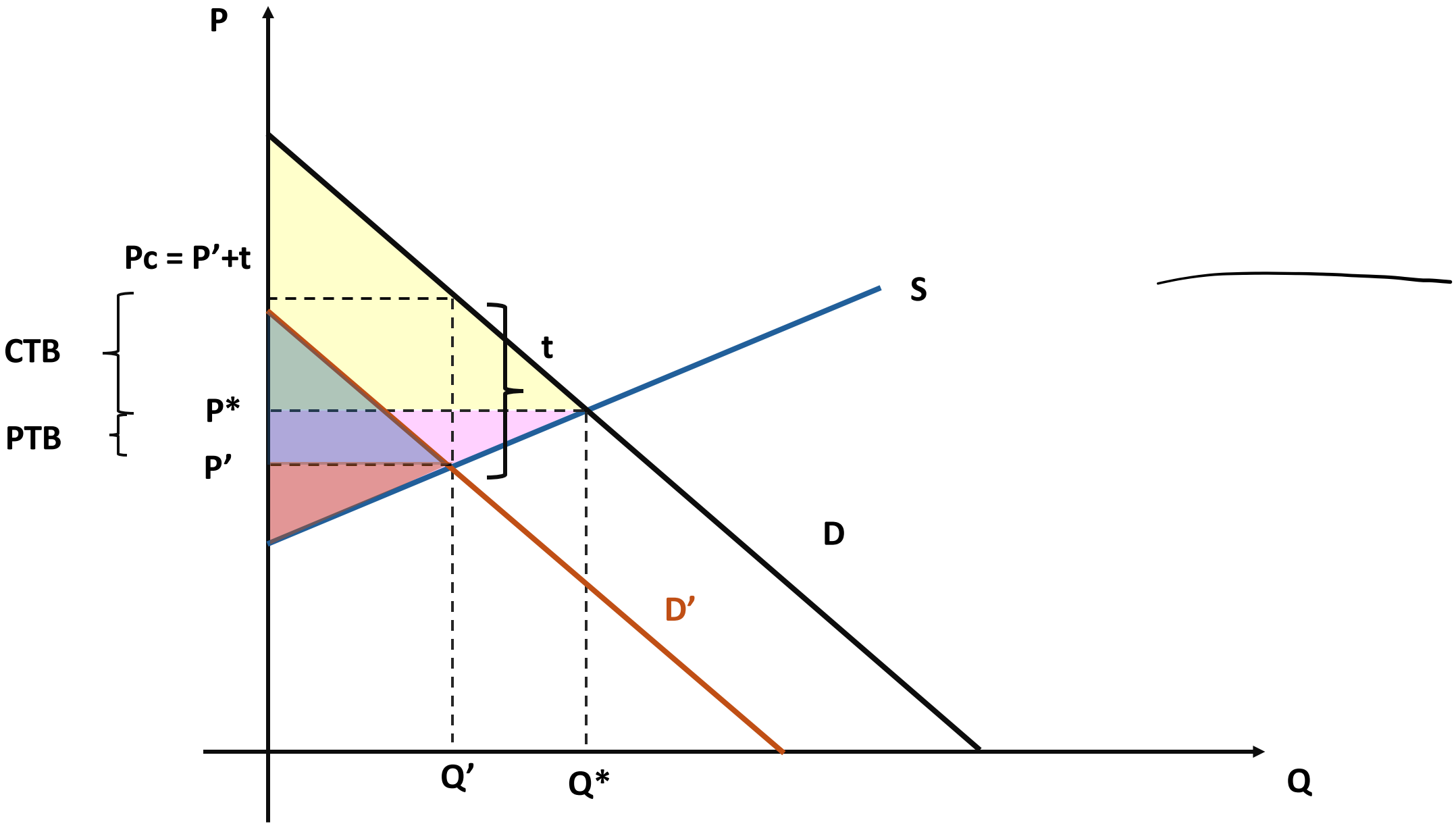
$$PTB = (P_{pre} - P_{post}) + \tau$$

Producer Tax Burden

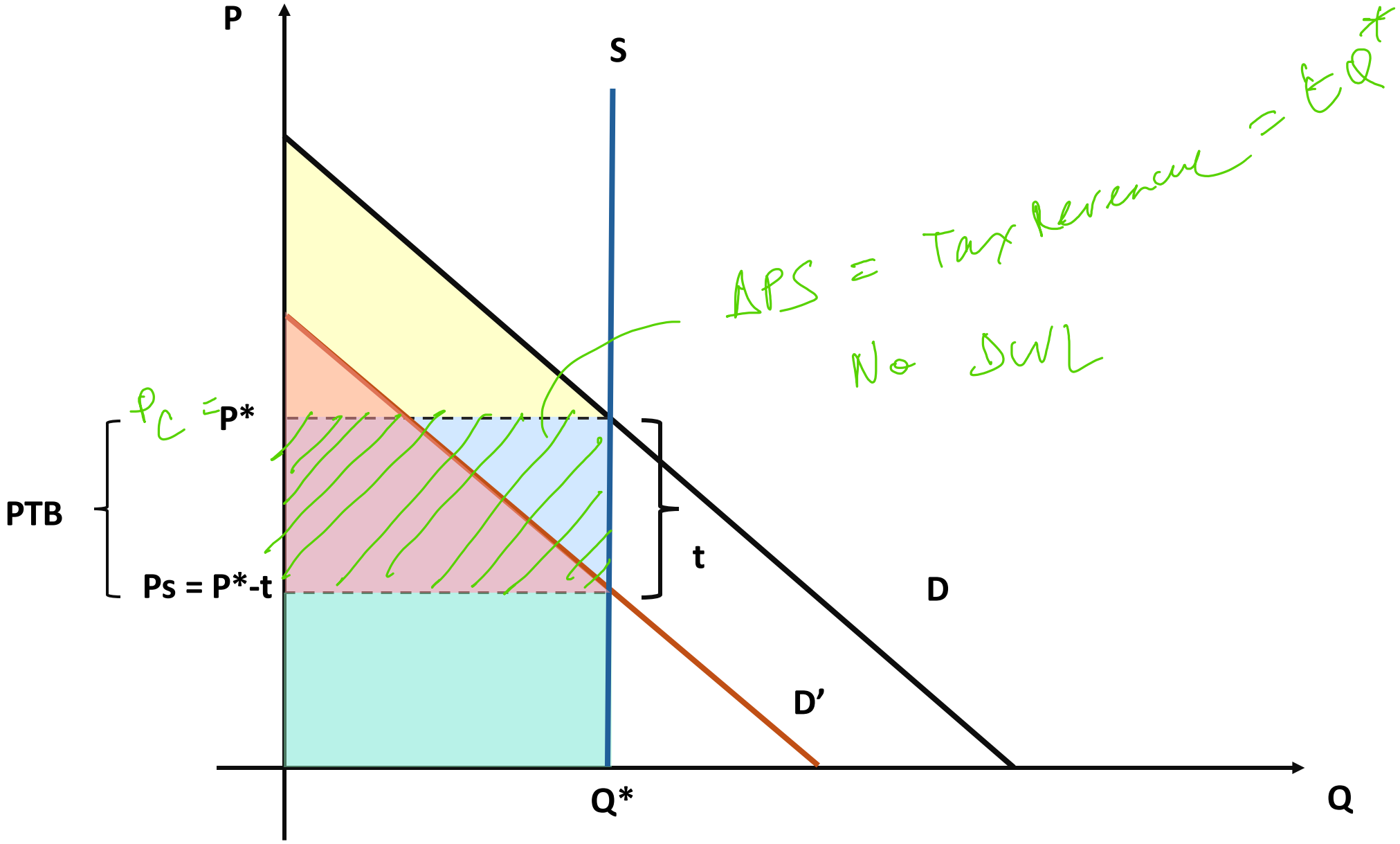
Tax Imposed on Seller



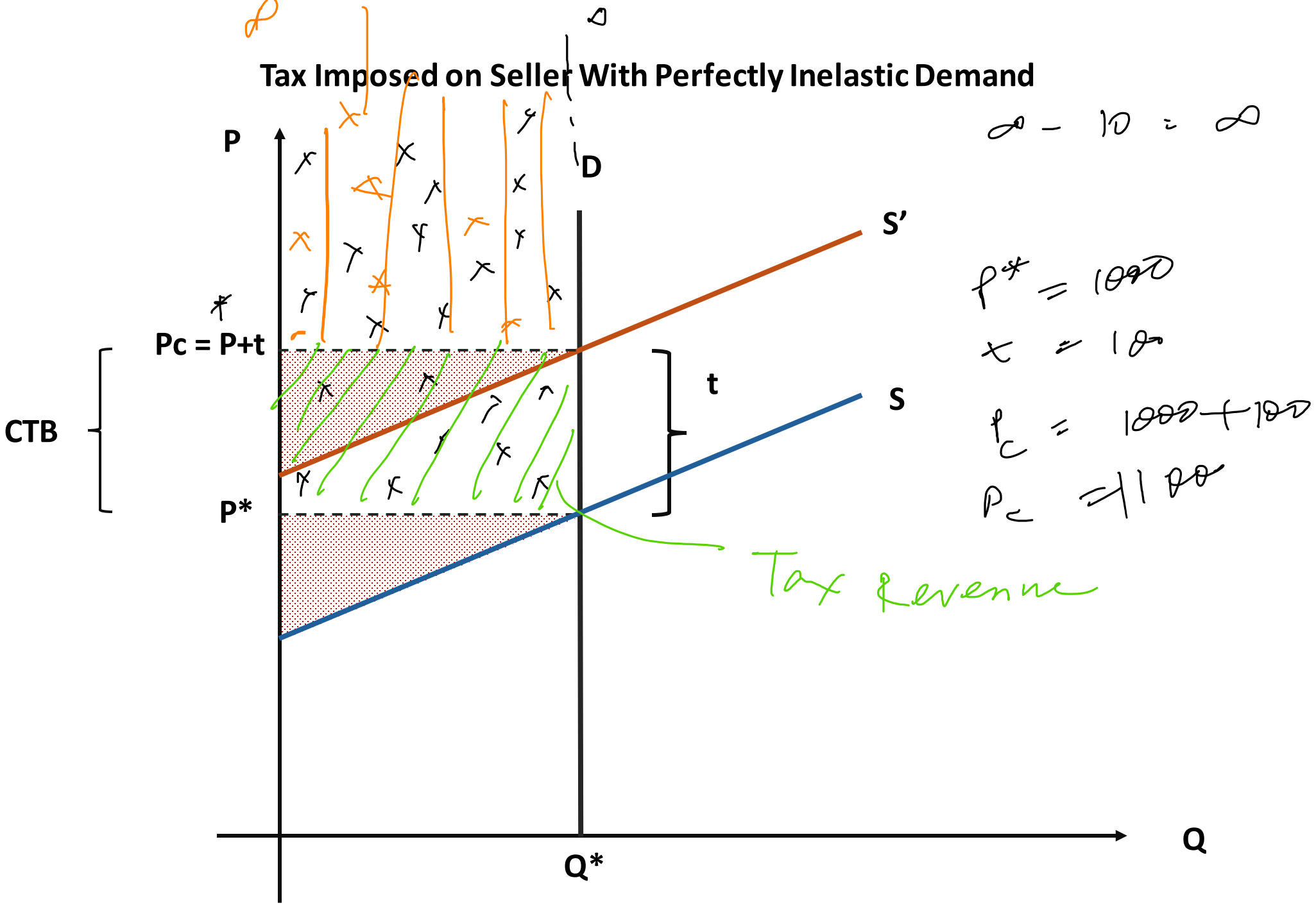
Tax Imposed on Buyer



Tax Imposed on Buyer With Perfectly Inelastic Supply



Tax Imposed on Seller With Perfectly Inelastic Demand



Consumer Theory

Shirly consumes only books (B) and coffee (C) and prefers both the same amount. Her weekly budget is INR 2000 . With that money, she can either consume only 5 books or only 40 cups of coffee in one week. Assume all books and all cups of coffee cost the same amount.

1. What is the price of one book and one coffee each respectively?

$P_B = \frac{2000}{5} = 400$

$P_C = \frac{2000}{40} = 50$

A. INR 400, INR 100

B. INR 200, INR 100

C. INR 400, INR 50 ✓

D. INR 200, INR 20

Shirly consumes only books (B) and coffee (C) and prefers both the same amount. Her weekly budget is INR 2000 . With that money, she can either consume only 5 books or only 40 cups of coffee in one week. Assume all books and all cups of coffee cost the same amount.

2. What is the budget relation? Draw her budget line.

$P_B = 400$, $P_C = 50$

Total exp $\therefore$ Income $= 2000$

$P_1 x_1 + P_2 x_2 = I$

$400B + 50C = 2000$

$8B + C = 40$

A. B + C = 2000

B. B + 8C = 2000

C. 8B + C = 2000

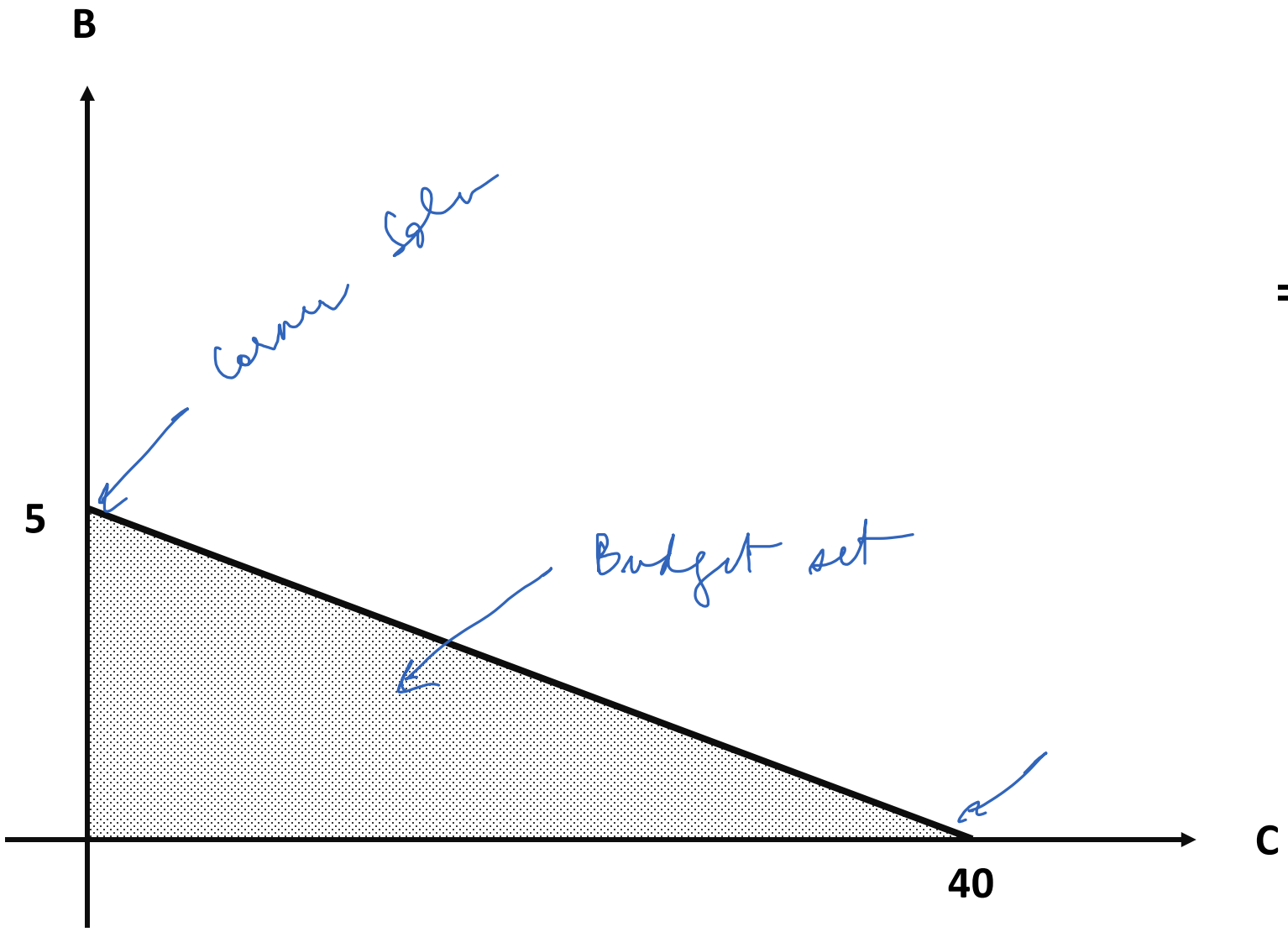
D. 8B + C = 40 ✓

Budget Relation

$$p_1 x_1 + p_2 x_2 = I$$

$$400B + 50C = 2000$$

$$\Rightarrow 8B + C = 40$$

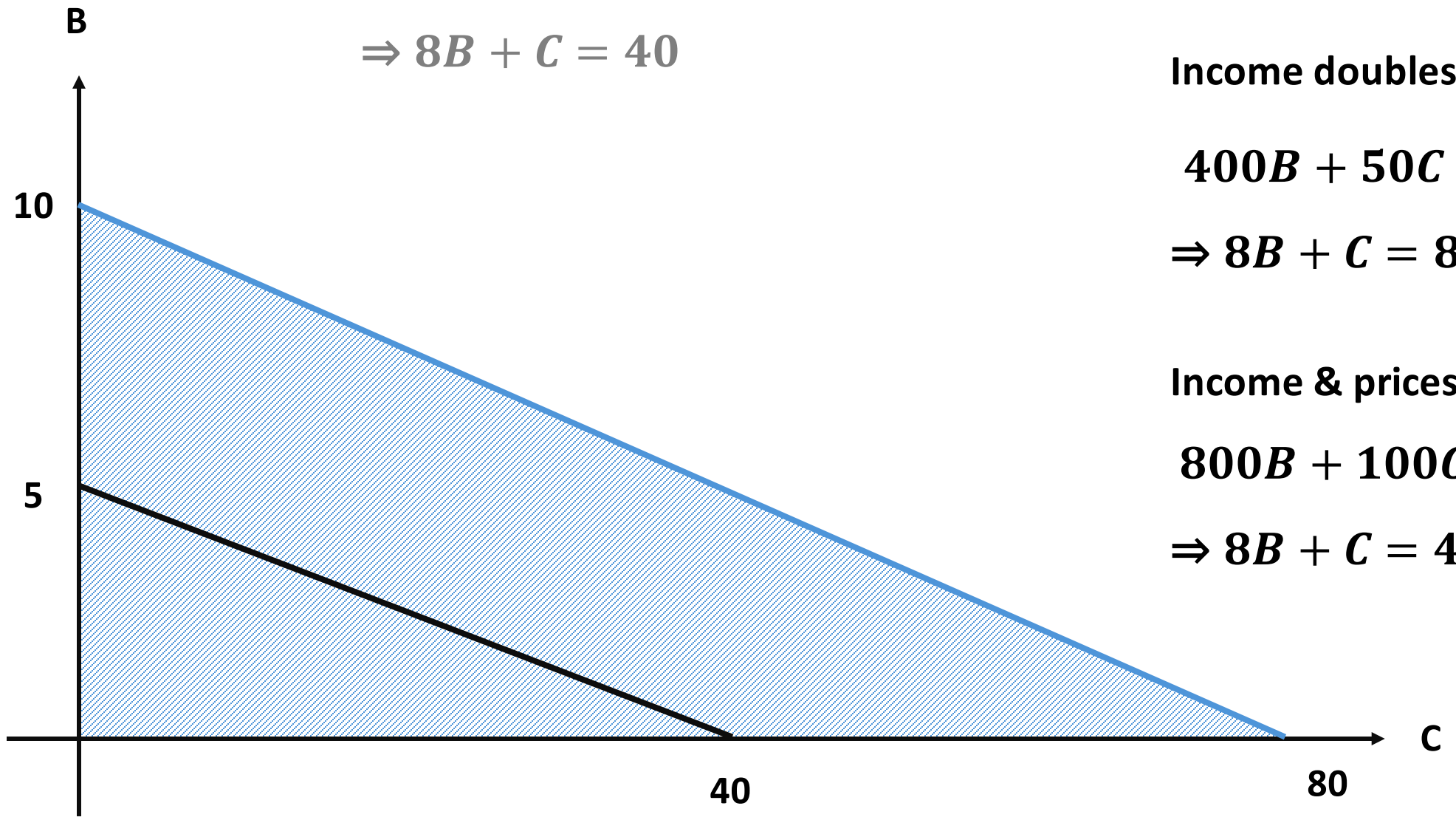


Shirly consumes only books (B) and coffee (C) and prefers both the same amount. Her weekly budget is INR 2000 . With that money, she can either consume only 5 books or only 40 cups of coffee in one week. Assume all books and all cups of coffee cost the same amount.

3. What happens if her weekly budget is doubled, but the price of each book and each cup of coffee is also doubled? Draw a diagram to illustrate.

$$400B + 50C = 2000$$

$$\Rightarrow 8B + C = 40$$



$$p_1 x_1 + p_2 x_2 = I$$

Income doubles:

$$400B + 50C = 4000$$

$$\Rightarrow 8B + C = 80$$

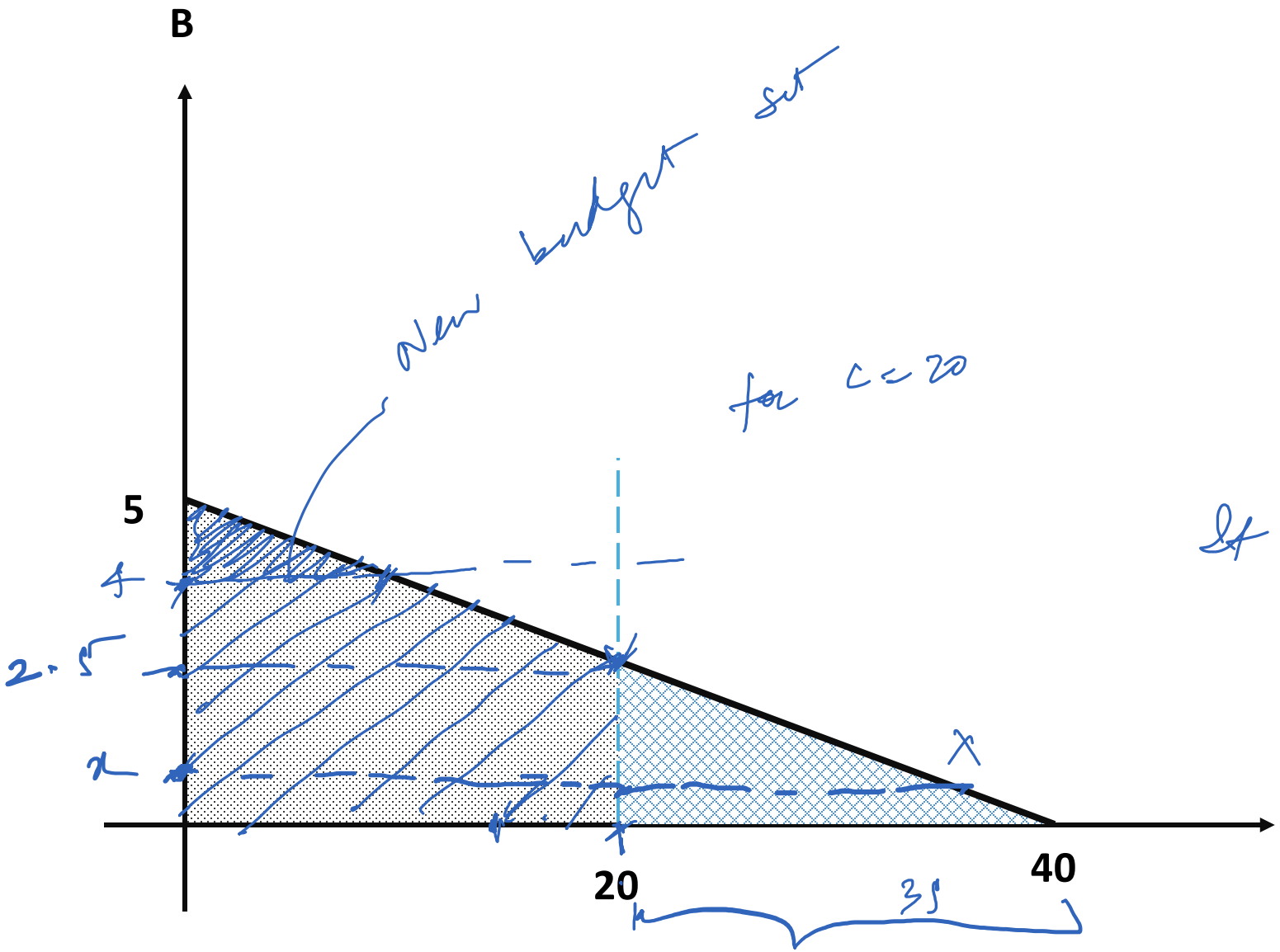
Income & prices double:

$$800B + 100C = 4000$$

$$\Rightarrow 8B + C = 40$$

Shirly consumes only books (B) and coffee (C) and prefers both the same amount. Her weekly budget is INR 2000 . With that money, she can either consume only 5 books or only 40 cups of coffee in one week. Assume all books and all cups of coffee cost the same amount.

4. In the original problem, Shirly is advised by her doctor to ration her coffee consumption to not more than 20 cups of coffee per week. Re-draw the budget line for this scenario. What is her consumption of coffee if she consumes 2 books?



Budget Relation

$$p_1x_1 + p_2x_2 = I$$

$$400B + 50C = 2000$$

$$\Rightarrow 8B + C = 40$$

$$C \leq 20$$

If books are constraint also $B \leq 4$

Shirly consumes only books (B) and coffee (C) and prefers both the same amount. Her weekly budget is INR 2000 . With that money, she can either consume only 5 books or only 40 cups of coffee in one week. Assume all books and all cups of coffee cost the same amount.

5. In the original problem, Shirly gets a prize money voucher of INR 200 which she can spend on books. Re-draw her new budget line.

200 = 0.5B.

Budget Relation

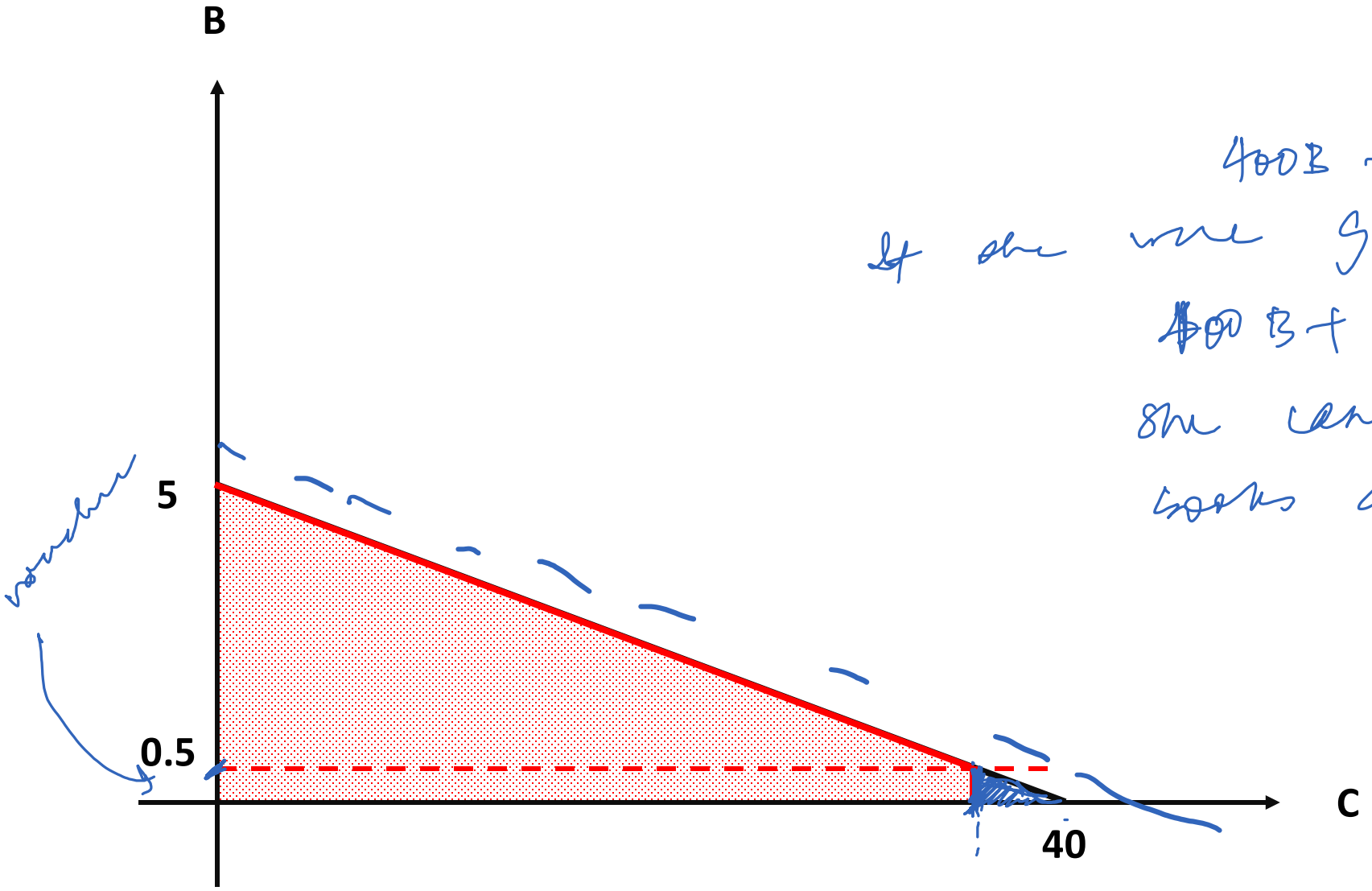
$$p_1x_1 + p_2x_2 = I$$

400B + 50C = 2000

If she was given 200 as money

400B + 50C = 2200

She cannot buy zero books anymore.



$P_a = 1$ $P_w = 0.5$

6. Suppose that apples cost $1 each. Water can be purchased for 50 cents per gallon $P_w = 0.1$
up to 20,000 gallons, and 10 cents per gallon for each gallon beyond 20,000 gallons.

Draw the budget constraint for a consumer who spends $200 on apples and water.

Budget Relation

$$p_1 x_1 + p_2 x_2 = I$$

$$a * p_A + w * p_W = 200$$

$$w \leq 20,000 \Longrightarrow$$

$$a * 1 + w * 0.5 = 200$$

$$w \geq 20,000 \Longrightarrow$$

$$a * 1 + w * 0.1 = 200$$