

Chapter 4 Basic Review: In general, to find the optimal bundle, you need two equations:

1) $MRS_{x,y}$ (which is $MU_x/MU_y = P_x/P_y$) and 2) $P_xX + P_yY = B$

*If U is Cobb-Douglas, like $U = x^a y^b$, then $MRS = \frac{ay}{bx}$ since ($MU_x = \frac{ay^b}{x^{1-a}}$ and $MU_y = \frac{bx^a}{y^{1-b}}$)

If not, just divide MU_x/MU_y to get $MRS_{x,y}$

Chapter 5: 3 basic ideas: We want to answer 3 questions:

A) What happens when price changes? (Derive the demand curve)

B) What happens when income changes? (Shift in the demand Curve, Income-consumption Curve, Engel Curve)

C1) When price changes, how much are people hurt? C2) And why do they change their optimal choices? (Some of the difference is due to relative price changes (**substitution effects**), and some due to "income"-like changes (**income effects**).

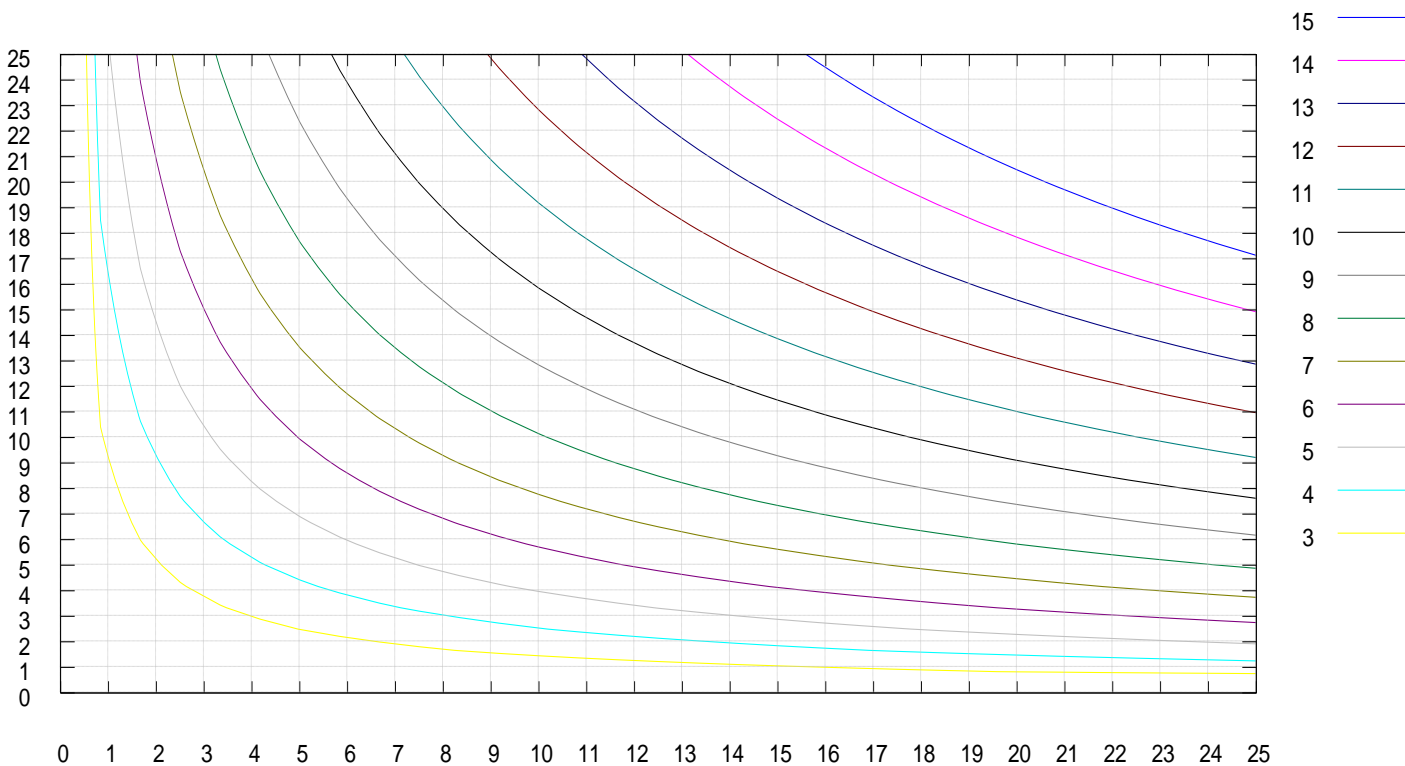
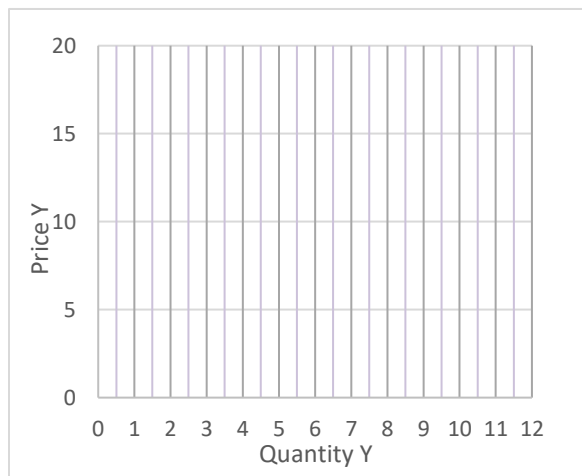
Slutsky Equation: Total Response to Price = (Change due to price, same utility) + (Change due to income, same prices)

Today's Problem 1) $U = x^4 y^5$, $P_x = \$10$, $P_y = \$10$, budget=200.

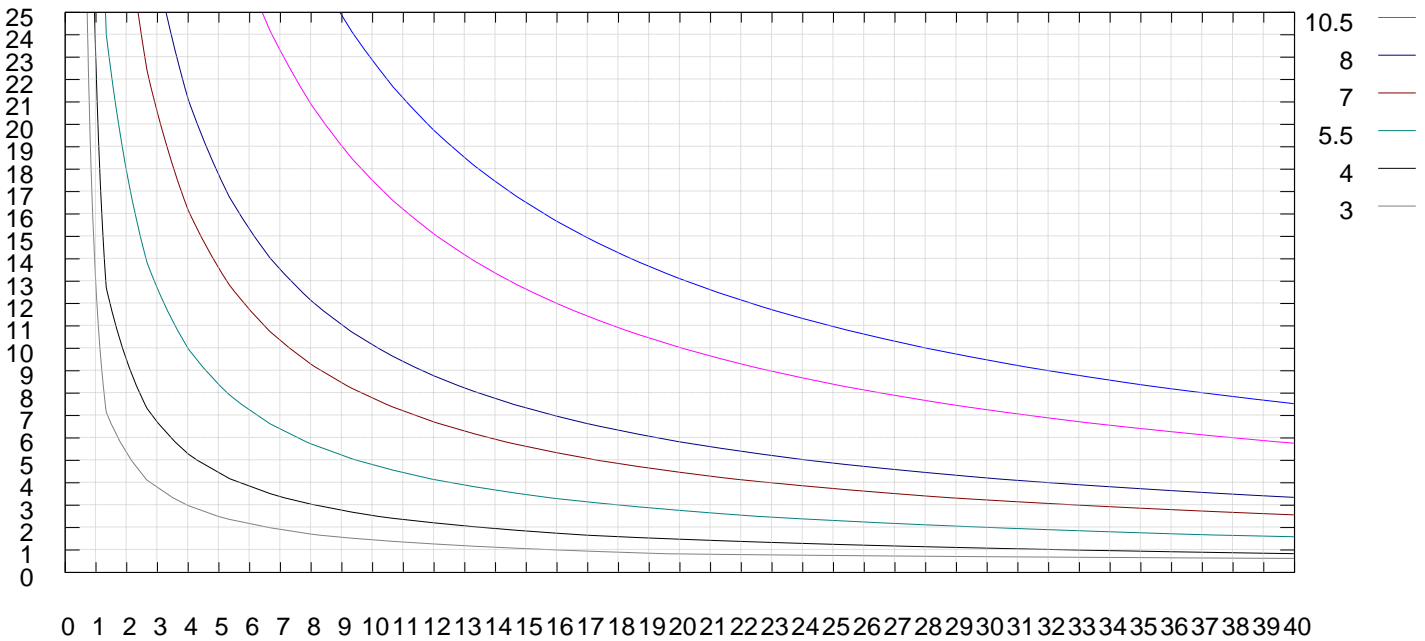
Find optimum, and draw below.

Problem 2: $U = x^4 y^5$, $P_x = \$10$, $P_y = \$15$, budget=200.

Problem 3: $U = x^4 y^5$, $P_x = \$10$, $P_y = \$20$, budget=200.



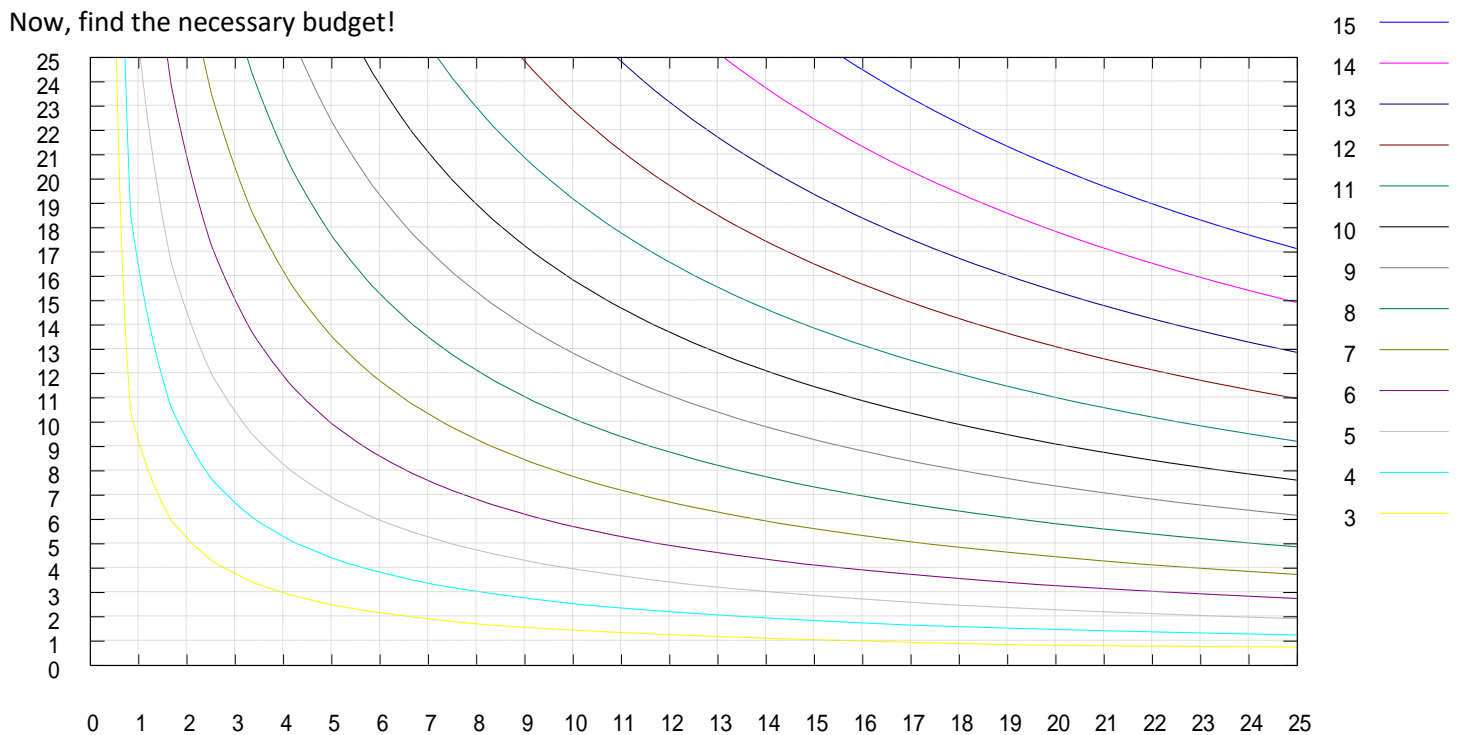
Problems 4, 5, 6: Find the optima $U=x^4y^5$, $P_x=\$10$, $P_y=\$20$, for budget = (\$200 already done), \$300, and \$400.



Problem 7: **Compensating Variation:** Compare **Problem 1** and **Problem 2** again. Find the Income at the NEW prices that would give us the same amount of OLD utility. This tells us how much the rise in prices hurts! **It tells us how much more money we would need to get back to the old utility level.** This would be \$_____ more.

2 Equations: 1) $MRS_{x,y} = P_x/P_y$ (Using prices from **Problem 2**) 2) $U=x^4y^5 = \{\text{Utility from Problem 1}\}$ Call this the **Decomposition or Hypothetical Basket**.

Now, find the necessary budget!



Lastly: We say that the TOTAL decrease in Y bought when P_y goes up from \$10 to \$15 can be broken into two parts: The substitution effect is from Original Y to Decomposition Y. Income effect is from Decomposition to Final Y.

