# Assignment 2

2.a) Slope $= \frac{\Delta y}{\Delta x}$ ; Note that $P_y = 10$

Find $P_x$ from $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

From $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

$\frac{9}{2} = \frac{P_x}{10}$

$2P_x = 90$

$P_x = \frac{90}{2}$

$P_x = 45$ #

2.b) $P_x = 180$, Find $P_y$ first

Slope $= \frac{\Delta y}{\Delta x} = \frac{9}{2}$

Find $P_y \rightarrow \frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

$\frac{9}{2} = \frac{180}{P_y}$

$9P_y = 180 \cdot 2$

$P_y = \frac{180 \cdot 2}{9}$ (20)

$P_y = 40$

From $I = P_x \cdot x + P_y \cdot y$

$I = (180)(4) + (40)(9)$

$I = 720 + 360$

$I = 1080$ #

2.c) From C to D we know that

(1.) From C to B, this consumer loses 4 utils consuming 9 units less nuts (Y), moving from $IC_2$ to $IC_1$

(2.) From B to D, this consumer gains back 4 utils from consuming 4 utils more of avocadoes (x), returning to $IC_2$

(3.) Consuming 4 more avocadoes yields 4 utils of $MU_x$. Therefore, the average $MU_x$ is $\frac{4}{4} = 1$ util #

2.d) Consider on $IC_1$ and $IC_2$

(1.) On $IC_1$, from A to B this consumer is willing to give up 9 nuts for 2 avocadoes (from 2 to 4 units), from consuming up to 4 avocadoes.

(2.) On $IC_2$, from C to D this consumer is willing to give up 9 nuts for 4 avocadoes (from 4 to 8 units), now consuming up to 8 avocadoes.

(3.) Since $MU_y$ from 9 to 18 units have to equal on both $IC_1$ and $IC_2$, we can see that this consumer requires more and more avocadoes to maintain the same amount of utility.

Eventually, we can say that when this consumer continues to consume avocadoes, its MU is decreasing in accordance with the law of diminishing MU.

1.a)

| Unit | $TU_h$ | $MU_h$ | $MU_h/P$ | $TU_c$ | $MU_c$ | $MU_c/P$ |
|---|---|---|---|---|---|---|
| 1 | 15 | 15 | 15 | 12 | 12 | 12 |
| 2 | 26 | 11 | 11 | 21 | 9 | 9 |
| 3 | 35 | 9 | 9 | 27 | 6 | 6 |
| 4 | 41 | 6 | 6 | 32 | 5 | 5 |
| 5 | 45 | 4 | 4 | 35 | 3 | 3 |
| 6 | 48 | 3 | 3 | 37 | 2 | 2 |
| 7 | 49 | 1 | 1 | 38 | 1 | 1 |

Two conditions must be satisfied: First, MU of ham over price must be equal to MU of cheese over price. Second, the budget must be all spent.

The only consumtion bundle (number of ham and cheese) that satisfies the condition is Belle chooses 4 hams and 3 cheeses. The expenditure will be exactly ($1x4)+($1x3) = $7

1.b) At the maximum $MU_h/P$ and $MU_c/P = 1$, considering this point.

The expenditure will be exactly ($1x7)+($1x7) = 14. It is not possible because it exceeds the budget that Belle has and that bundle doesn't reach the satiation point.