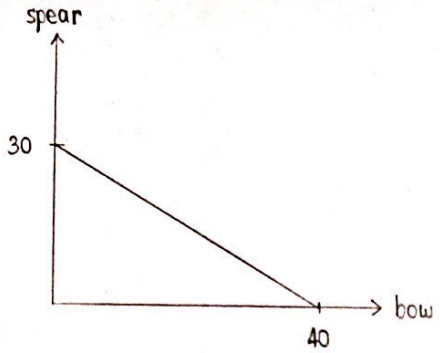
1.

1.a)



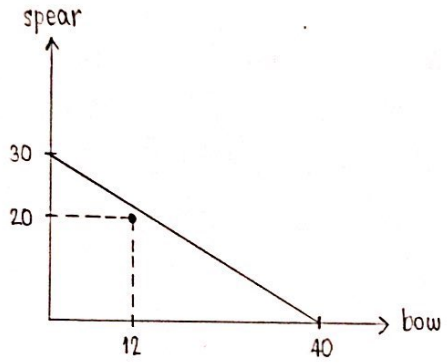
120 units of wood

- spear = $\frac{120}{4}$ = 30 units
- bow = $\frac{120}{3}$ = 40 units

1.b) produce 30 spears = 40 bows

∴ the opportunity cost of spear = $\frac{40}{30}$ = 1.33 bows

1.c)



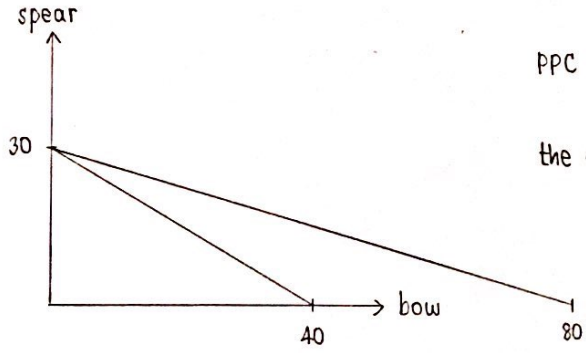
possible

- 20 spears : 20(4) = 80
- 12 bows : 12(3) = 36

} 116 units ✓

all 120 units

1.d)



PPC : tilt counter-clockwise

<extend capability → produce bow = $\frac{120}{1.5}$ = 80 units>

the opportunity cost of spear

will change from 1.33 bows to $\frac{80}{30}$ = 2.66 bows

(increase by double)

2

2.a) $\varepsilon_d = \frac{\% \Delta Q_d}{\% \Delta P}$

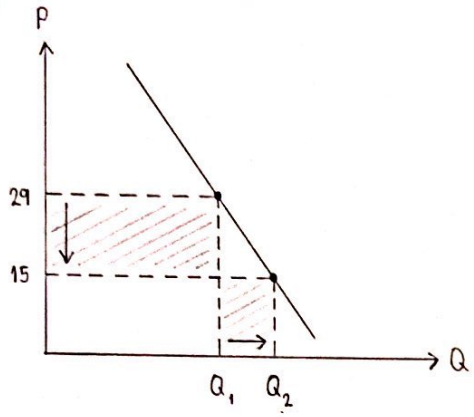
$= \frac{21,000 - 20,000}{29 - 42} \times \frac{42}{20,000}$

$= \frac{1,000}{-13} \times \frac{42}{20,000} = \frac{21}{10}$

$= \frac{-21}{130} = -0.1615$ #

<inelastic demand : $|\varepsilon_d| < 1$>

2.b)



<inelastic demand>

- price doesn't change the amount of revenue of MRT purple line

3.

3.a) price elasticity of demand

$$= \left[\frac{Q_2 - Q_1}{P_2 - P_1}\right]\left[\frac{P_1}{Q_1}\right]$$

$$= \frac{40-80}{25-20} \cdot \frac{20}{80}$$

$$= -\frac{40}{5} \cdot \frac{20}{80}\,{}_{2} \; 2 = -2 \; \#$$

price elasticity of supply

<same formula as demand>

$$= \frac{100-80}{25-20} \cdot \frac{20}{80}$$

$$= \frac{20}{5} \cdot \frac{20}{80} = 1 \; \#$$

3.b) consumer surplus

$$= \frac{1}{2} \times 80 \times 10 = 400$$

producer surplus

$$= \frac{1}{2} \times 80 \times 20 = 800$$

3.c) consumer surplus

$$= \frac{1}{2} \times 40 \times 5 = 100$$

producer surplus

$$= \frac{1}{2} \times 40 \times 10 + (15 \times 40)$$

$$= 200 + 600 = 800$$

∴ the consumer surplus and all surplus ↓

the producer surplus remains the same

3.d) deadweight loss

$$= \frac{1}{2} \times 40 \times 15 = 300$$

4.

4.a) $\frac{P_x}{P_y} = \frac{MU_x}{MU_y}$

$\frac{P_x}{10} = 4.5$

$\therefore P_x = 45$ #

$MRS = \frac{MU_x}{MU_y} = \frac{9}{2} = 4.5$

4.b) $\frac{P_x}{P_y} = \frac{MU_x}{MU_y}$

$\frac{180}{P_y} = 4.5$

$\therefore P_y = 40$

budget $= 180(4) + 40(9)$
$= 1{,}080$ baht #

< equilibrium on point B(4,9) >

4.c) the average MU_x of avocado

$= \frac{4}{4} = 1$

4.d) $IC_1 : A \rightarrow B$

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

$IC_2 : C \rightarrow D$

$\frac{\Delta y}{\Delta x} = -\frac{9}{4}$

$\therefore MU_y$ of IC_1 & IC_2 are equal

$\Rightarrow$ requires more avocadoes to maintain the same unity

< Law of diminishing marginal utility : MU ↓ → keep continuing to consume products >