Q	利潤
$(a-bp)$	$(p-c)$

$$\Rightarrow (ap - ac - bp^2 + bcp)$$

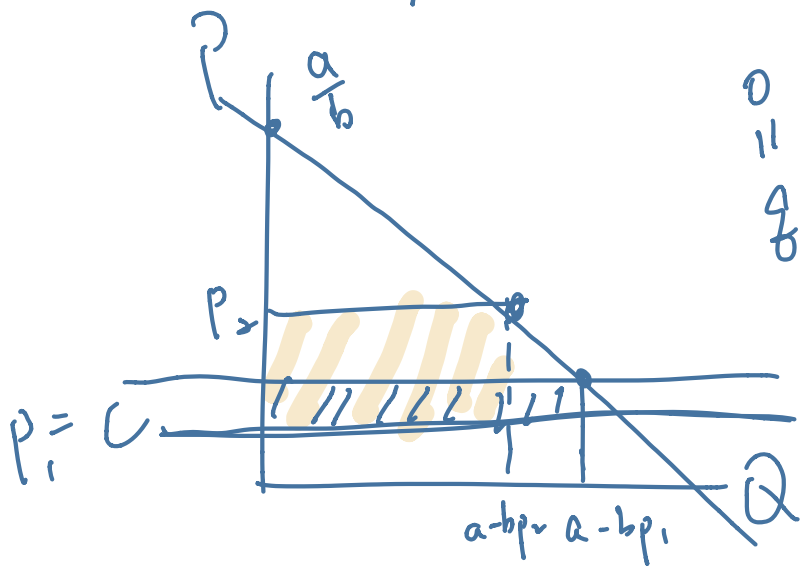
$$\frac{a+bc}{2b}$$

$$\Rightarrow -bp^2 + (a+bc)p - ac$$

$-b$ $\quad$ a

1 $\quad$ $-c$

$(-bp+q)$



$0 = a - bp$

$\Rightarrow p = \frac{a}{b}$

$q = a - bp$

$p = \frac{q}{b}$

to maximize

$$(a-bp)(p-c)$$

(n) = 2

3 × n = 6

for i in range(0,)

讀入 n=2 (有兩種方法

for { 先試① a_1 b_1 c_1
再試② a_2 b_2 c_2

for (第①種方法：要試從 $p=c_1$ 到 $p=\frac{a_1}{b_1}-c_1$ $i=1 \sim (\frac{a_1}{b_1}-c_1)$

②: p_i 求 $\max (a_i - b_i p_i) \cdot (p_i - c_i)$

p_i = price

$(a_i - b_i p_i) \cdot (p_i - c_i)$ = profit

Code

(缺: what if there is no profit)

```
int methodNum = 0;
int a=0, b=0, c=0;
int price = 0;
int profit = 0;
```

```
int max_profit = 0;
int optimal_price = 0;
int optimal_method = 0;
```

```
for j in range(1, methodNum+1)
    input a, b, c
    //每次計算用的價格 p
    for i in range(c, a/b)
        price = i
        profit = (a - b·i)(i - c)
        if(profit > max_profit)
            optimal_price = price
```

max_profit = profit

optimal_method = j

print O_method, " ", O.price, " ",

O_profit;

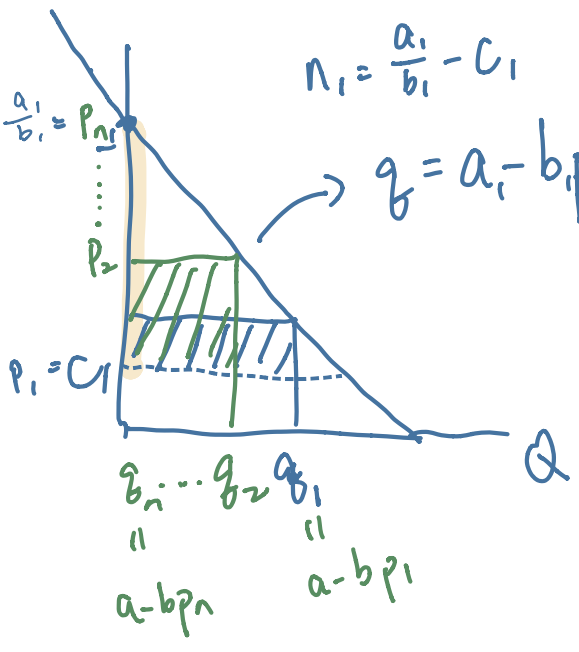
總共計算出

$$\left(\frac{a_1}{b_1}-c_1\right)+\left(\frac{a_2}{b_2}-c_2\right)$$

$$+\cdots\left(\frac{a_n}{b_n}-c_n\right)$$

種 price & profit

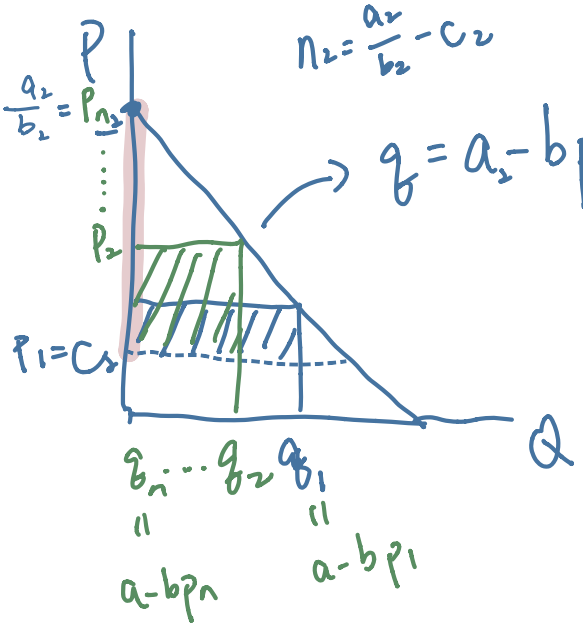
▨ = profit = 長 × 寬
= Q × 利潤
= (a-bp)·(c-p)



$n_1=\frac{a_1}{b_1}-c_1$

$q=a_1-b_1p$

method 1



$n_2=\frac{a_2}{b_2}-c_2$

$q=a_2-bp_2$

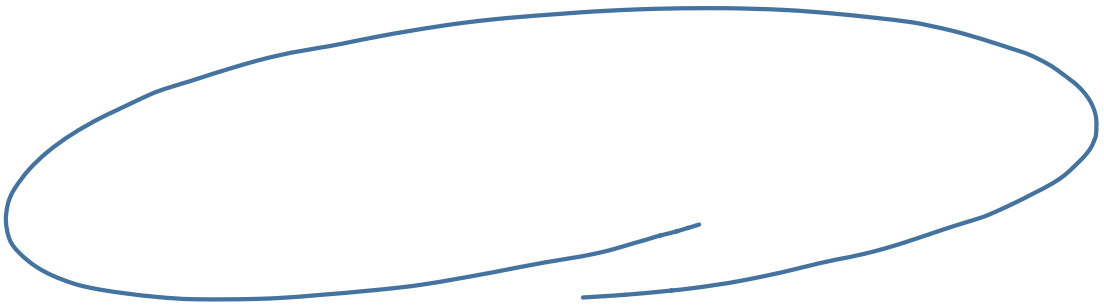
method 2

.....

method n.

(接續上面 code)

// 已找到最佳解，要 output 給 pdog



if $c \geq \frac{a}{b}$，則 profit

$= q \times (p-c)$

$= (a-bp) \cdot (p-c)$

(依舊有可能 > 0)

(但 $q = a-bp$ 不可能為負值)