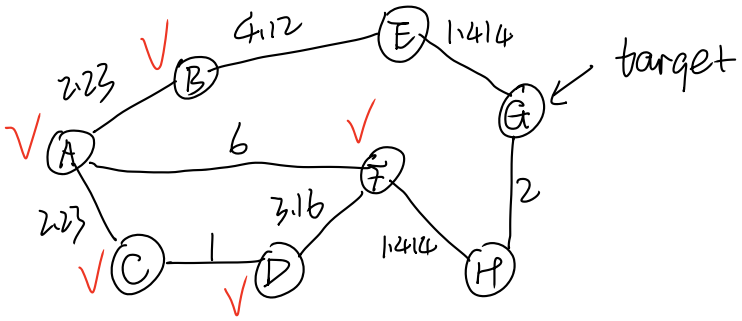
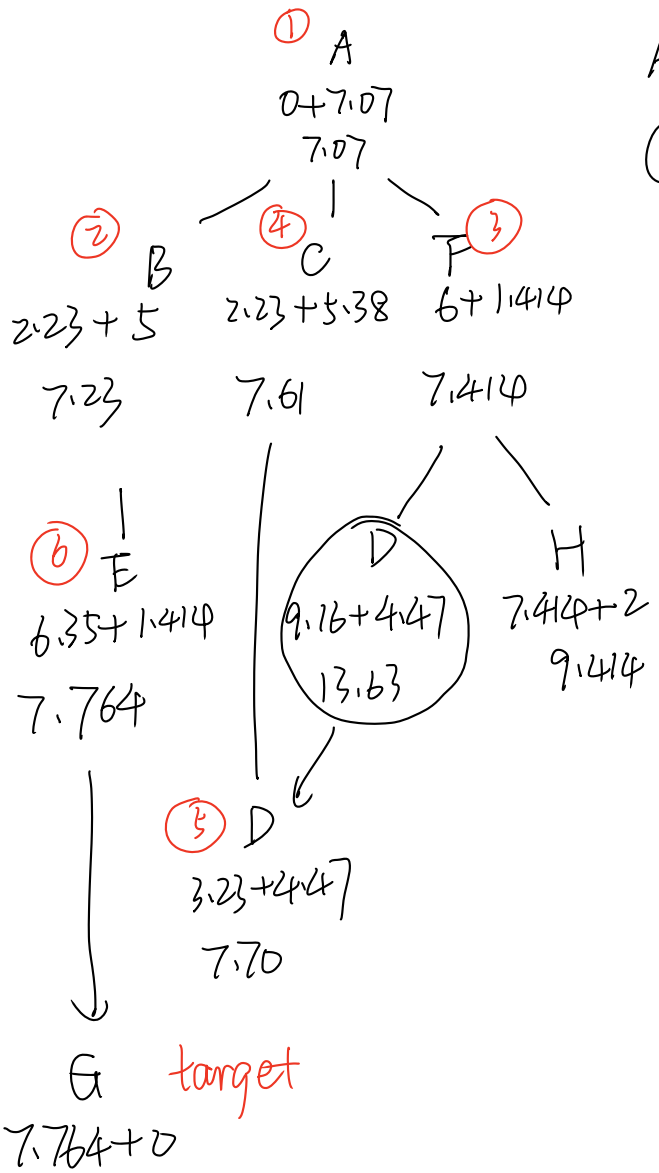
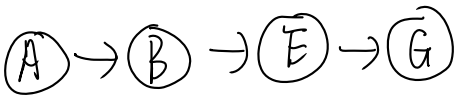
Question 1



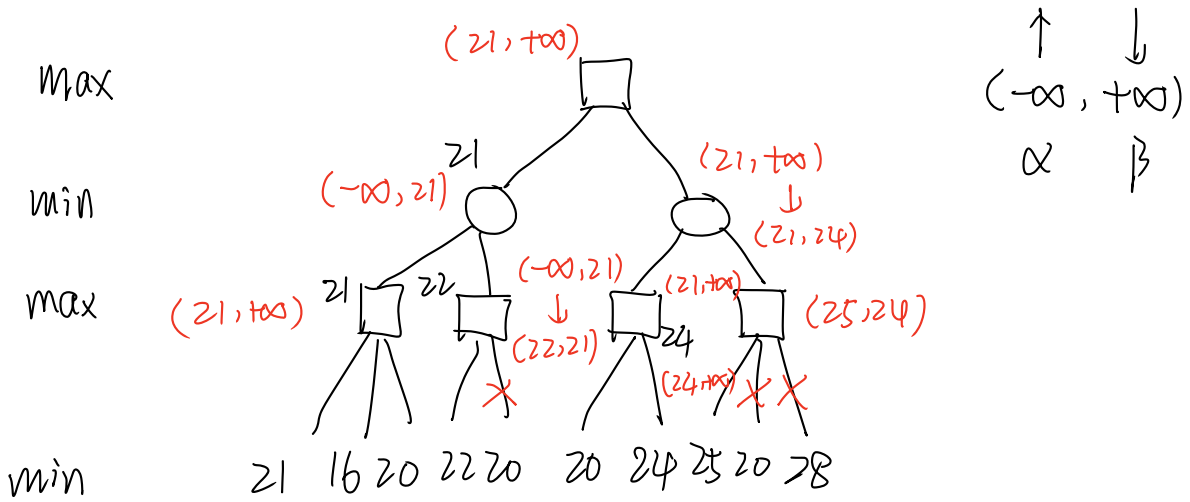
	h(x)
A	7.07
B	5
C	5.38
D	4.47
E	1.4142
F	1.4142
G	0
H	2



Answer



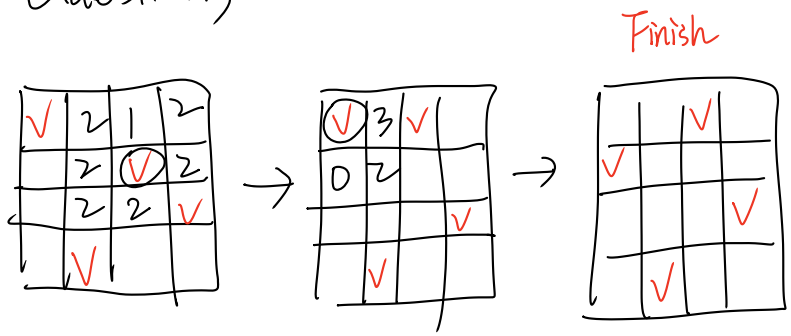
Question 2



竟然完全正确了

我懂了什么是α-β剪枝了

Question 3



注意CSP中的启发式问题

solution space

Question4 Germany

B M F N H S D E W at most once

√ √ √

arrive/leave

conn ⇒ travel time rating

(1) solution space is the arrangement of 9 citys.

The first and the last cities must be two of B, M, F

(2) one solution is a gene sequence

a sequence of number 1-9

B M F N H S D E W

eg. 1 5 3 9 4 2 7 8 6

denotes the visit sequence of each city

two of the first three number must contain 1 and 9

(3) two objective function

{ maximize : sum of the rating
minimize : sum of the travel time

(4) initial population: randomly generate individual

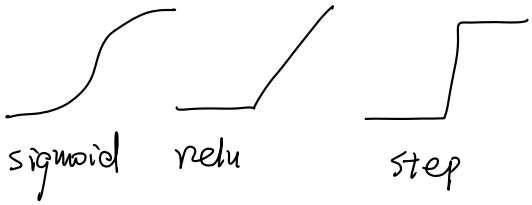
crossover: two of the solution sequence crossover

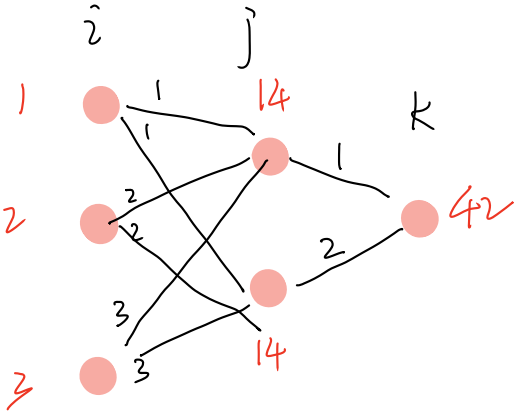
mutation { flip: pick two of the number and flip
reverse:

select : select the best individual according to their objective fune

reproduce: replace the old population and create new population

Question 5





(1) $1\times1+2\times2+3\times3=1+4+9=14 \rightarrow relu(14)=14$

$14\times2+14\times1=42 \rightarrow relu(42)=42$

这下对了！

(2) $\alpha=0.001$

$$\frac{\delta W}{\delta W_{jk}}=\frac{\delta W}{\delta O_k}\frac{\delta O_k}{\delta z_k}\frac{\delta z_k}{\delta W_{jk}}$$

$W=(y-O_k)^2\cdot\frac{1}{2}$ $\quad \frac{\delta W}{\delta O_k}=(-1)(y-O_k)=39$

$O_k=relu(z_k)$ $\quad \frac{\delta O_k}{\delta z_k}=\begin{cases}0 & z_k<0\\ 1 & z_k\geq 0\end{cases}=1$

$z_k=\sum_j w_{jk}x_{jk}$ $\quad \frac{\delta z_k}{\delta W_{jk}}=x_{jk}$

$$W^2=\begin{bmatrix}0.454\\ \\ 1.454\end{bmatrix}$$

$14\times39\times0.001=546\times0.001=0.546$

$39\times1\times1=0.039$

$39\times2\times1=0.078$

$39\times1\times2=0.078$

$39\times2\times2=0.156$

$39\times1\times3=0.117$

$39\times2\times3=0.234$

$\frac{\delta W}{\delta O_k}\frac{\delta O_k}{\delta z_k}\frac{\delta z_k}{\delta O_j}\frac{\delta O_j}{\delta z_j}\frac{\delta z_j}{\delta W_{ij}}$

$\frac{\delta W}{\delta O_k}\frac{\delta O_k}{\delta z_k}$: 39 $\quad \frac{\delta z_k}{\delta O_j}$: W_{jk} $\quad \frac{\delta O_j}{\delta z_j}$: 1 $\quad \frac{\delta z_j}{\delta W_{ij}}$: x_{ij}

好像懂了

确实是这样

我悟了、

两层会算了！