

# Optimisation

1. Create options (xo)
2. Randomly solve (xs) selecting from options
3. Only the column sum of xs will be our problem (xp) to solve knowing only it and xo whilst being blind to xs
4. Solve it

```
nn=:4
]<xo=:8* (] % +/"1) (,~nn) $ ?2#~*~nn
```

2.66667	2.66667	0	2.66667
4	4	0	0
2	2	2	2
0	0	4	4



2	2	2	2
2	2	2	2
2	2	2	2



```
6 6 6 6
```

```
xt=(xo,0) {~ ?20#nn NB. rando solve incl all 0 option
```

```
eval=:3 : '+/ | xp - +/"2 y'
```

```
bs=:3 : '({:xt) ,~ (xo,0){~ (] i. <./) {{eval y, }: xt}}"1 xo, 0' NB. best solve
```

```
solver=: 3 : 0
```

```
xt=:bs 1
```

```
eval xt
```

```
)
```

```
solver"0 i.25
```

```
128 120 112 104 96 88 80 72 64 56 48 40 32 24 16 13.3333 8 4 4 0 0 0 0 0 0
```



2	2	2	2
0	0	4	4
4	4	0	0