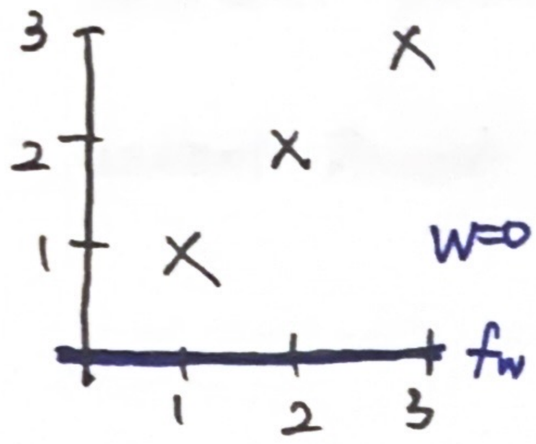
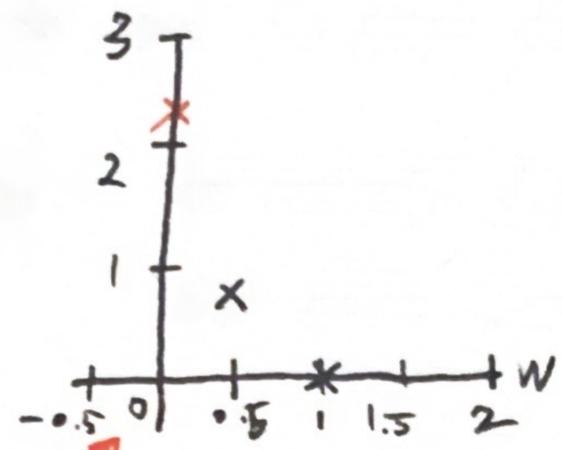
④ $W=0$

㉠ $f_W(x)$



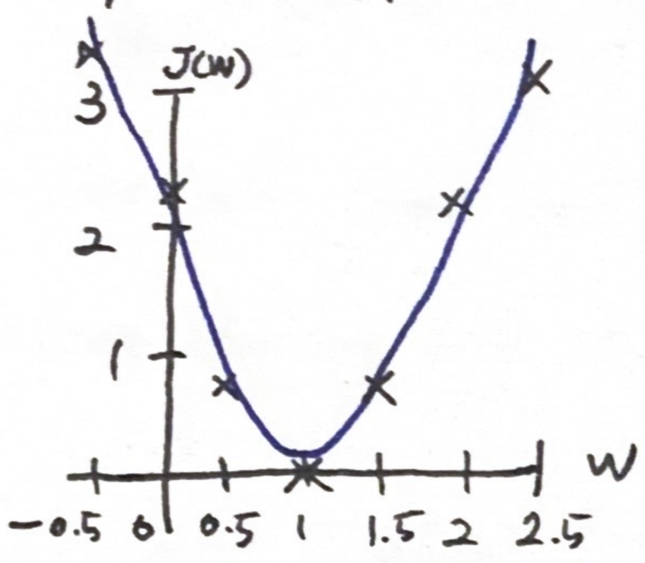
$J(W)$



$J(0) = \frac{1}{2m}\left[(0-1)^2+(0-2)^2+(0-3)^2\right]$

$= \frac{1}{6} \times 14 \approx \underline{2.3}$

∴ Graph of cost function $J(W)$



$W=1 \Rightarrow$ minimum $J(W)$

<Recap>

① Depending on chosen W value,

$\Rightarrow$ graph shape of model $f_W(x)$ changes.

② Finding the W value that makes the result of cost function "minimum"

= Finding the linear graph that best fits the training set

∴ Goal of Linear regression

: $\underset{W,b}{\text{minimize}}\, J(W,b)$

$\Rightarrow$ choosing W and b that

makes cost function result as small as possible

would give us a good model