(Typos)

→① Supervised (learning [rules/functions] form input to output)

relationships

with

Trained (x, y) Pairs so that when

x ↑ ↑
i/p o/p

a [new i/p] is given it can give correct

output. "not present in training"

eg:→ Brain tumour classification, Cat-dog img
   (Binary)   Classificiation
                                 (Binary)

→② Unsupervised learning

* Doesn't involve learning a function from input to output

* Instead we are just given a dataset, are expected to find some pattern or structure in it.

eg:- Amazon/Netflix clustes users with similar preferences

"Customers who liked this also bought"

③ Re-inforcement learning

The goal is to learn a mapping from input values x to output values y, but "without a direct supervision signal" to specify which output values (y) are best for a particular input.

There is "no training set". The learning problem is framed as an agent interacting with an environment.

- Agent observe current state ⟶ Select an action

Goal is to find mapping from $x \rightarrow y$ which maximize reward
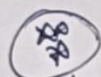
Recieves Reward

Agent goes to new state

eg:- AlphaGo, AI Playing Chess

※ Reason why doesn't come under supervised is coz of no training set

※ Reason why don't come under unsupervised is coz their are i/p-o/p pairs

	Supervised	v/s	Reinforcement
Training data	labeled-fixed i/P-o/P pairs		learns from environment
Learning approach	learns from "Past data"		learns by "trail & error" (exploration)
feedback	Direct Supervision (loss minimization)		Reward - based
eg in Chess	learn from "grandmaster games"		Playing games and "improving" strategy
Generalization	"limited" to Patterns in training data		Can explore & discover "new moves"
Adaptability	Cannot adjust to "new Situations" easily		Continously "improves" Through "self-play"

Note:- Read Q learning, Monte Carlo Tree Search.