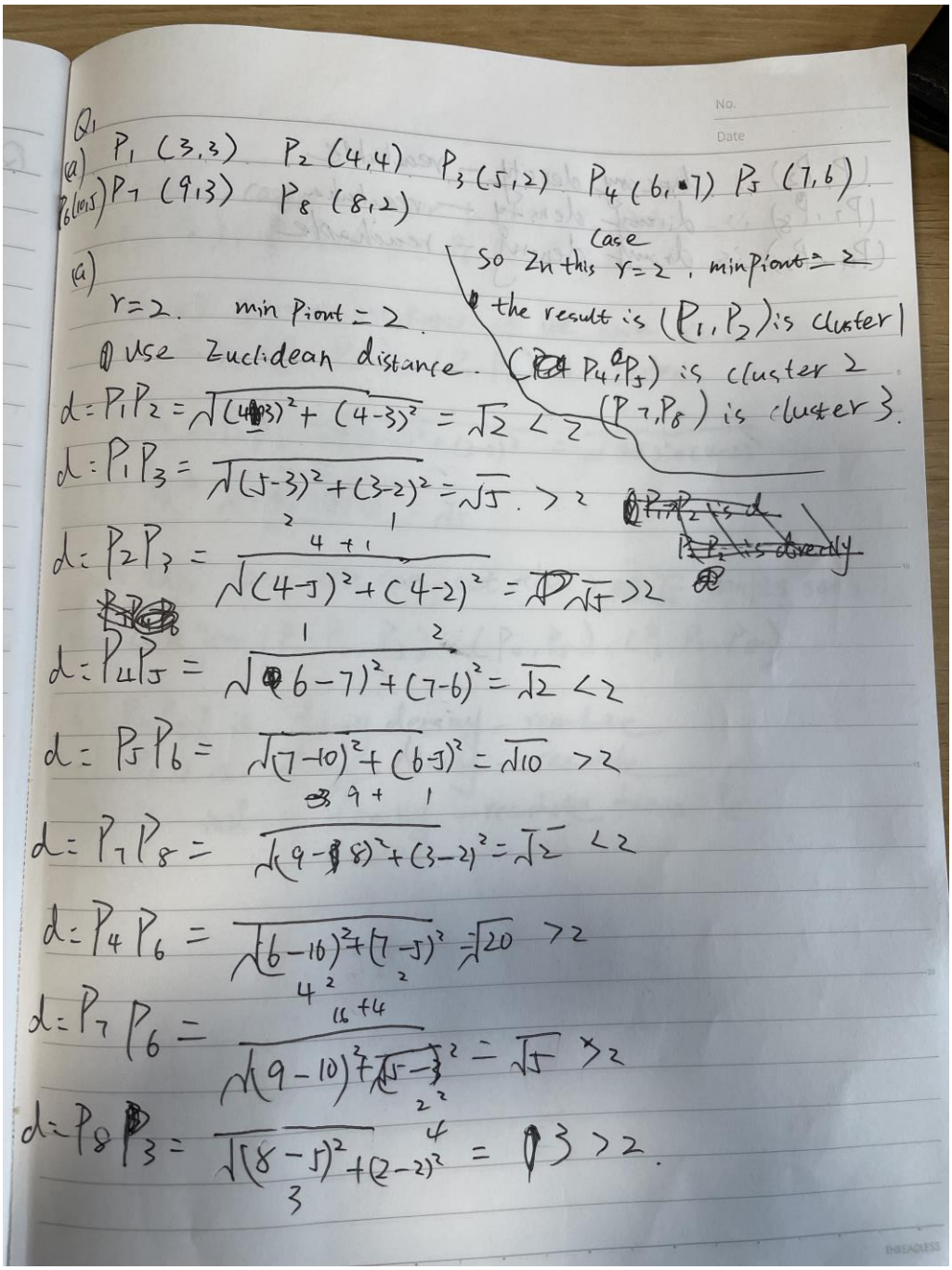
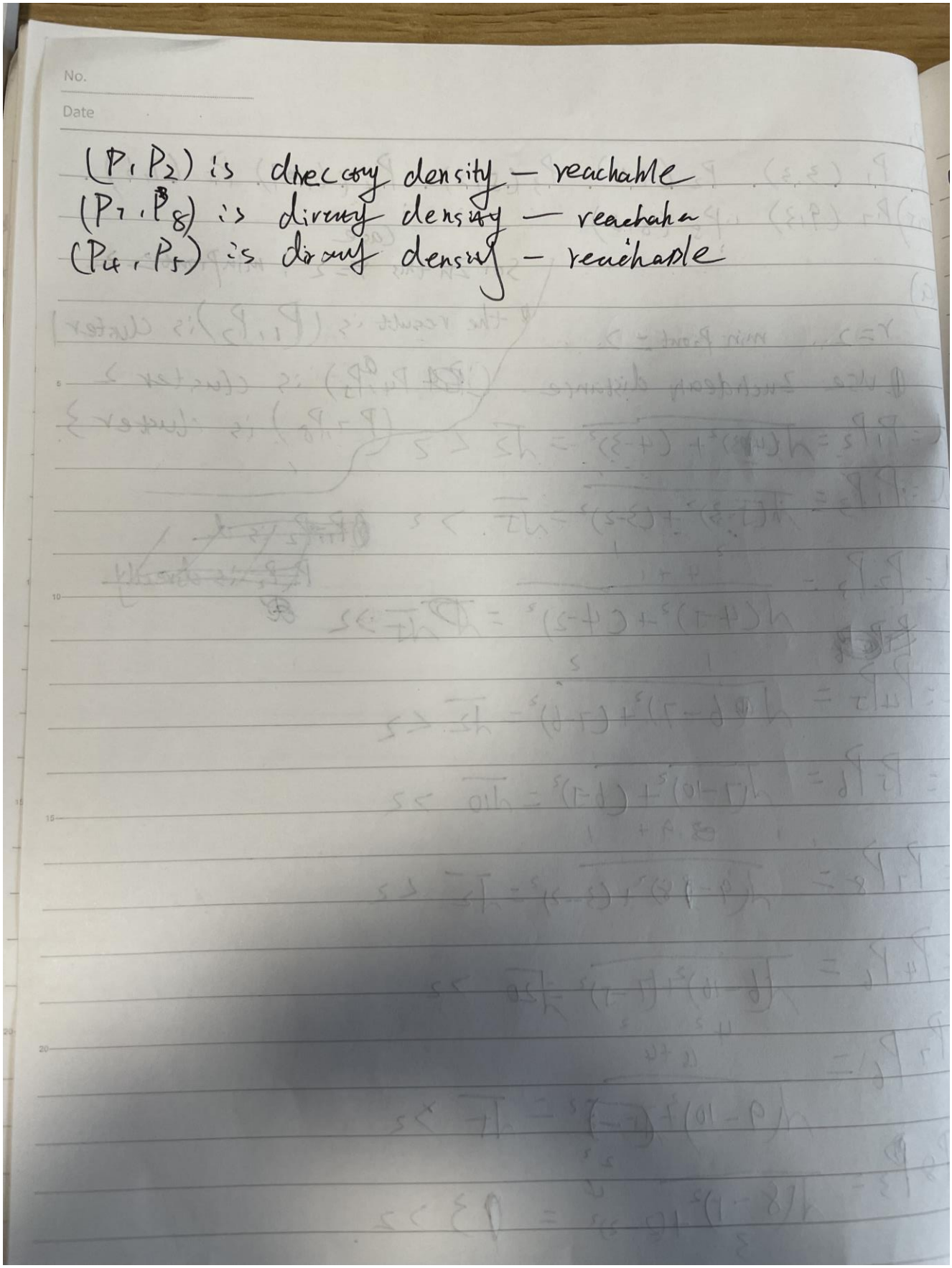
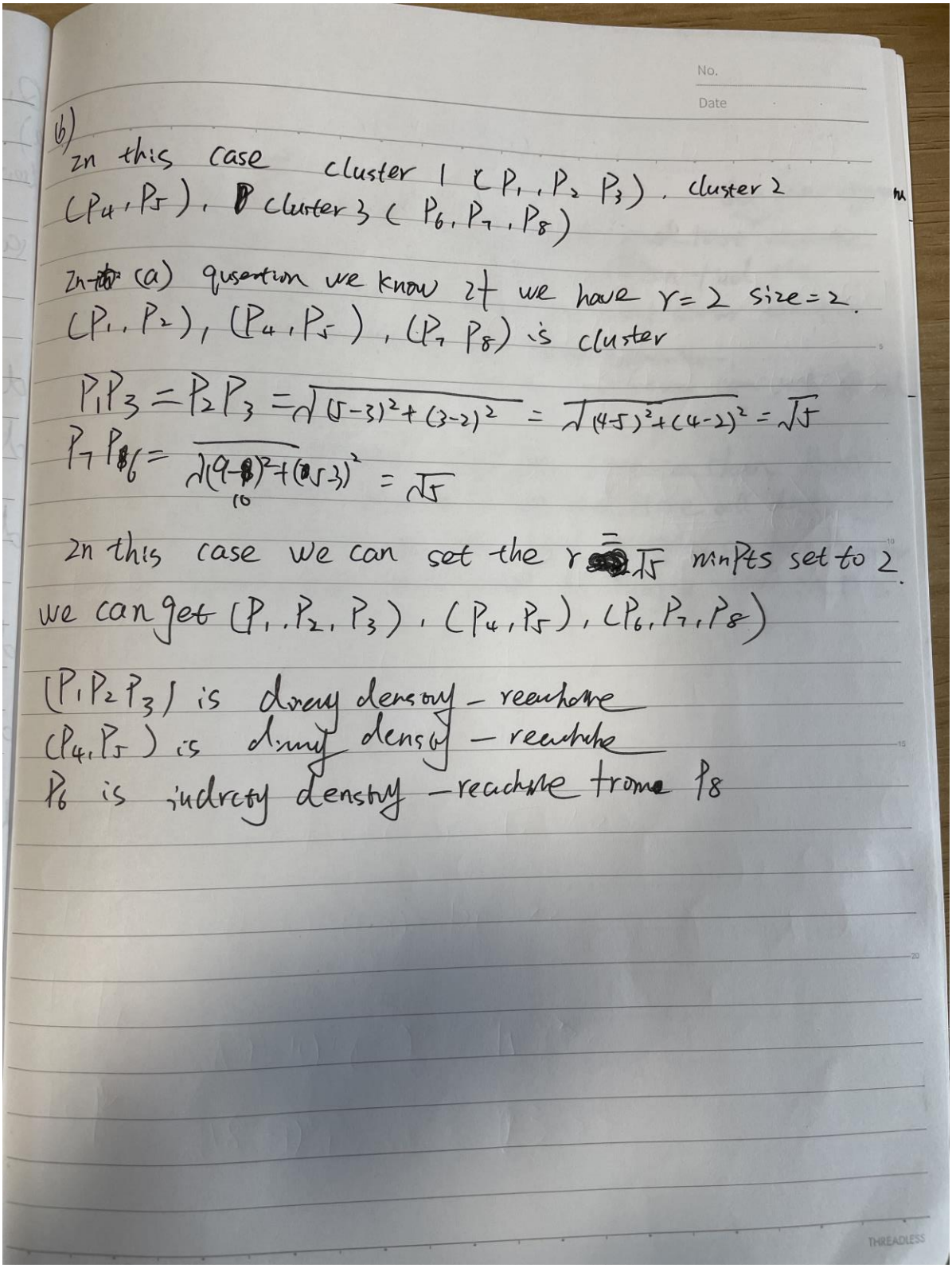
ID 2335100
Exam for # Artificial Intelligence 1/Artificial Intelligence and Machine Learning




No.
Date
(P1, P2) is directly density – reachable
(P7, P8) is directly density – reachable
(P4, P5) is directly density – reachable



b)

In this case cluster 1 (P_1, P_2, P_3), cluster 2 (P_4, P_5), cluster 3 (P_6, P_7, P_8)

In (a) question we know if we have $r=2$ size $=2$. (P_1, P_2), (P_4, P_5), (P_7, P_8) is cluster

$P_1P_3 = P_2P_3 = \sqrt{(5-3)^2+(3-2)^2} = \sqrt{(4-5)^2+(4-2)^2} = \sqrt{5}$

$P_7P_8 = \sqrt{(9-10)^2+(0-3)^2} = \sqrt{5}$

In this case we can set the r $\sqrt{5}$ minPts set to 2.

we can get (P_1, P_2, P_3), (P_4, P_5), (P_6, P_7, P_8)

($P_1P_2P_3$) is directly density-reachable

(P_4, P_5) is directly density-reachable

P_6 is indirectly density-reachable from P_8

No.
Date

Q2

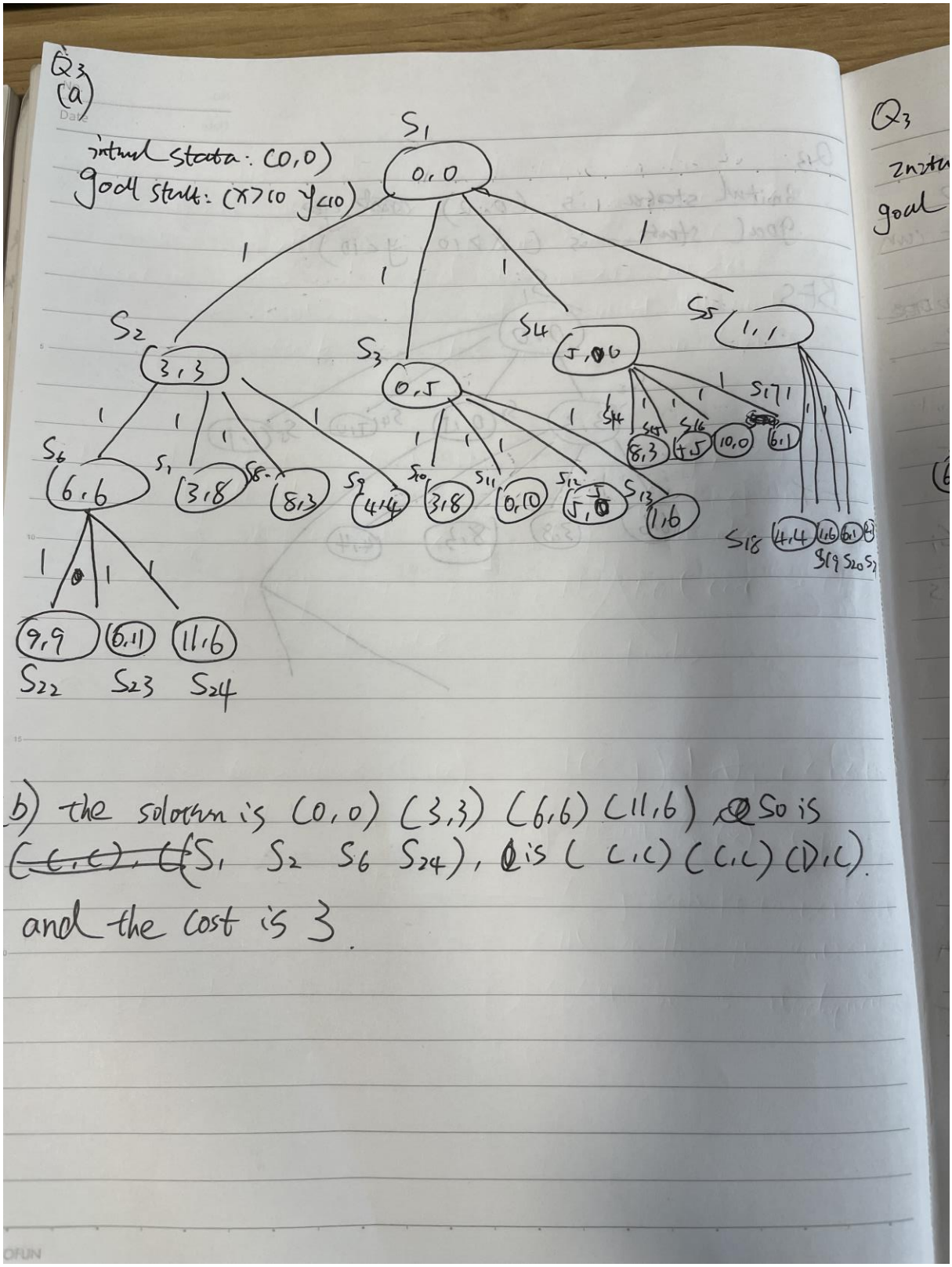
(a)

i) ① K-NN can train simple and fast than linear regression because K-NN just store train data and ② can find the class of the new example based on most similar examples. the person in the train data, ~~but linear Regression~~, linern regression can not find the similar examples

① linear regression use less space than K-NN in space in memory, because K-NN real store all data ②.

linear regression can use many example are free parameter in many dimensions. and K-NN is rungry slow in this case.

(b)



b) the solution is (0,0) (3,3) (6,6) (11,6) So is (S1 S2 S6 S24), is (c,c) (c,c) (D,c).

and the cost is 3.

Q4

Date

(a) This variable of this problem formulation, in this question give $0 < i \leq n$ and $0 < j \leq m$, where $n > 0$ $m > 0$ container $n > m$ because $n > m$ so each container can allocation ~~each~~ task. ~~and also $n > 0$, $m > 0$~~ more than one but we must allocate to ~~one~~ at most one task, so this variable is inadequate.

(b) in this object function $f(x) = \sum_{i=1}^{n} h_{xi} \times c_i$, is good corresponding to the size n, $x_i \leq n$ ~~and the $0 \leq j \leq m$~~ h_{xi} is corresponding to the $x_i = j$ and h_j. and the cost c_i is also corresponding to the minimum the total cost so this objective function is adequate. hour of works

(c) in this constraints $g_i(x) = \sum_{i=1}^{n} 1(x_i = j) = 1 \; \forall j, 0 < i \leq m$ ~~we would be to add a penalty term $Q(x)$, a penalty can be added for infeasible situation~~ $x_i = j$ each Position $0 < i \leq n$ of this vector contain j, $0 \leq j \leq m$ in this question $0 < i \leq m$ $1(x_i = j)$ is 1 otherwise $= 0$ $0 < i \leq m$ so is inadequate but

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