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MIT 6.006

Problem Et D.

0-1

 $A = \{i \in \{i\}\} \text{ if } i \in \mathbb{Z} \text{ and } 0 < i < 4 \text{ and } 13 = \{3 \le 1 \le 6 \}$

a ANB

i+(1) = [1,6,12,13,9]=A

0+ 5! B = {3, 6, \$ 12, 15}

1 + 5! =6

2+ 5! = 12

 $3 + \frac{51}{3!(2!)} = 13$

4+ 5? = 9

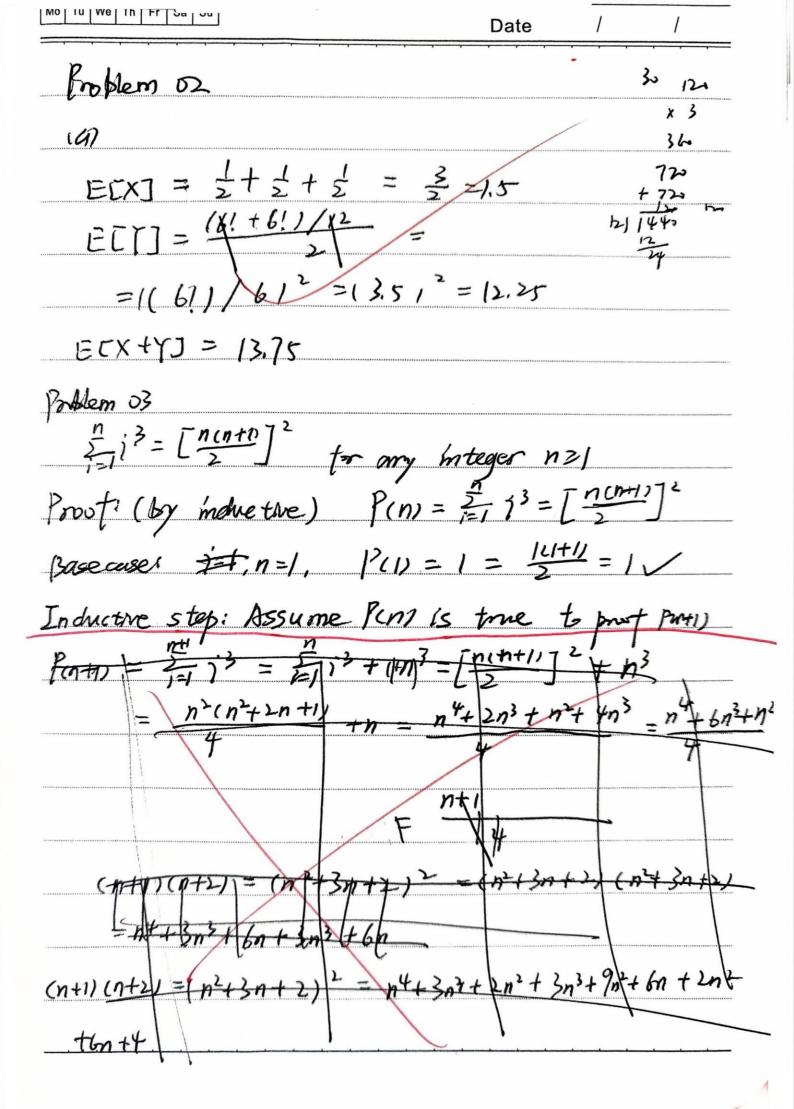
So A= { 6.12}

ANB = {612}

(31 |AUB) = | 13,69,12,15}]

1AUB1 = { 1, 3, 6, 9, 12, 13, \$ 15} =)

(c) (AB) = | { 1,913 } 1=3



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Inductive Step? Assume $f^2 m$ is the $f^2 m = \frac{n!}{2} i^3 = \frac{n!}{2} i^3 + (n+1)^3 = \left[\frac{n(m+1)}{2}\right]^2 + (n+1)^3$

 $=\frac{(n+1)^{2}\cdot n^{2}+4\cdot (n+1)^{3}}{4}=\frac{(n+1)^{2}(n^{2}+4n+4)}{4}$

= [cn+1) (n+2] = [m+n(n+2)]

50 Pinto / 12

Problem os.

Prove by industrial that every connected undirected Grouph G = (V, E) for useh |E| = |V| - 1 is a conjuic.

Prof: (By industre)

Base Case: 'G=(1,0) is/acylic V

Industre Step: Assume P(n), G=(n, n-1) is a

acylor Graph

P(nt) = G (n+1, n)

G is connected. Any degree = $\frac{2n}{n+1}$ 2,

so there is a vetex worth degree 1. connect

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to exactly one vertex u, Rema	sny vand the
edge competing v to u yields	•
n peci vertices and my edges	that is also ameeted
from PCM we know G'is ady Vertex V can not be eyple of	
Vertex V can not be eycle of (G / IZ
so 6 18 acylic. 1 because	degree of a circle
at least), so G contains a	
a cycles from Pens we prow	•
Gis also acylic, / I	
> .	