2180185 王海棠

NO:

DATE:

Section 2.1

A+

2. a. $A = \{RRR, LLL, SSS\}$

b. $B = \{RLS, RSL, LRS, SRL, SLR\}$

c. $C = \{RRL, RRS, RLR, RSR, LRR, SRR\}$

d. $D = \{RRL, RRS, RLR, RSR, LRR, SRR, LLS, LLR, LRL, LSL, RLL, SLL, SSR, SSL, SRS, SLS, RSS$

e. $D' = \{RRR, LLL, SSS, RLS, RSL, LRS, LSR, SRL, SLR\}$

$C \cup D = D = \{RRL, RRS, RLR, RSR, LRR, SRR, LLS, LLR, LRL, LSL, RLL, SLL, SSR, SSL, SRS, SLS, RSS, LSS\}$

$C \cap D = C = \{RRL, RRS, RLR, RSR, LRR, SRR\}$

4.

outcome	House number 1	2	3	4
1	F	F	F	F
2	F	F	F	V
3	F	F	V	F
4	F	F	V	V
5	F	V	F	F
6	F	V	F	V
7	F	V	V	F
8	F	V	V	V
9	V	F	F	F
10	V	F	F	V
11	V	F	V	F
12	V	F	V	V
13	V	V	F	F
14	V	V	F	V
15	V	V	V	F
16	V	V	V	V

b. Outcome 2, 3, 5, 9

c. Outcome 1, 16

d. outcome 1, 2, 3, 5, 9

e. (c) ∪ (d) = 1, 2, 3, 5, 9, 16 (c) ∩ (d) = 1

f. (b) ∪ (c) = 1, 2, 3, 5, 9, 16 (b) ∩ (c) = ∅

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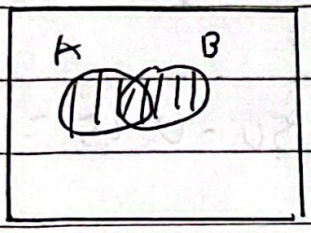
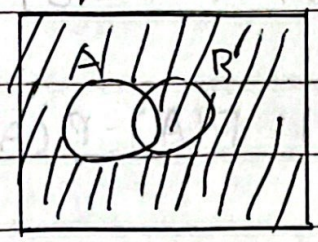
9. a. $(A \cup B)' = A' \cap B'$

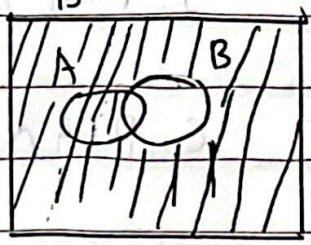
$A \cup B$



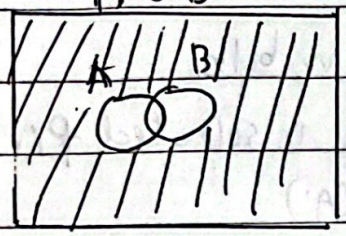
A'



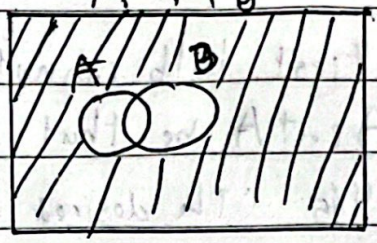
B'



$A \cup B'$



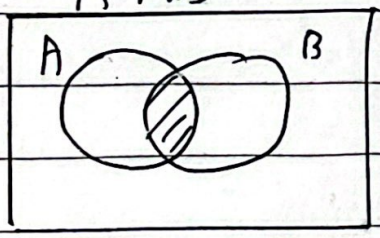
$A' \cap B'$



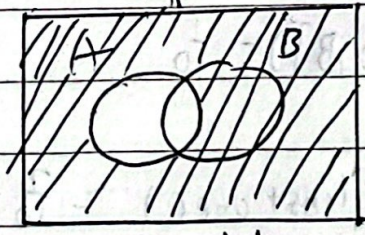
✓

b $(A \cap B)' = A' \cup B'$

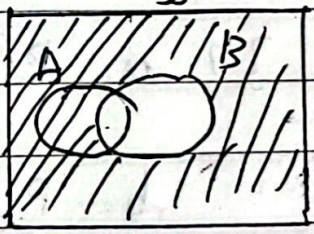
$A \cap B$



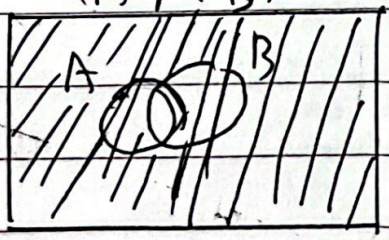
A'



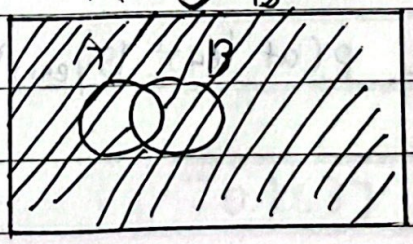
B'



$(A \cap B)'$



$A' \cup B'$



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DATE: Section 2.2

12 a. $P(A \cup B) = 0.5 + 0.4 - 0.25 = 0.65$

b. $P(A' \cap B') = P((A \cup B)') = 1 - P(A \cup B) = 1 - 0.65 = 0.35$

c. $P(A \cap B') = P(A) - P(A \cap B) = 0.50 - 0.25 = 0.25$

18. The first bulb cannot be the 75w bulb
Let event A be that a 75w bulb is selected first
$P(A) = 4/15$ The desired event is $P(A')$
So $P(A') = 1 - P(A) = \frac{11}{15}$

27. a. $P(\{A, B\}) = \frac{1}{10}$

b. P(at least one) $= \frac{7}{10}$

c. P(at least 15 years) $= \frac{6}{10}$

DATE:

2.3

30. a. $P_{3,8} = 336$

b. $\binom{30}{6} = 593775$

c. $\binom{8}{2}\binom{10}{2}\binom{12}{2} = 83160$

d. $P = \frac{83160}{593775} = 0.140$

e. $P = \frac{\binom{8}{6}+\binom{10}{6}+\binom{12}{6}}{\binom{30}{6}} = \frac{1162}{593775} = 0.002$

38. a. $P = \frac{\binom{6}{2}\binom{9}{1}}{\binom{15}{3}} = \frac{(15)(9)}{455} = 0.2967$

b. $P = \frac{\binom{4}{3}+\binom{5}{3}+\binom{6}{3}}{\binom{15}{3}} = \frac{4+10+20}{455} = 0.0747$

c. $P = \frac{\binom{4}{1}\binom{5}{1}\binom{6}{1}}{\binom{15}{3}} = \frac{120}{455} = 0.2637$

d. $P = \frac{\binom{9}{5}}{\binom{15}{5}} = \frac{126}{3003} = 0.42$

DATE:

40.

a. $\frac{12!}{(3!)^4} = 369600$

b. $\frac{24}{369600} = 0.0000649$