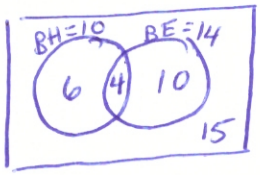
Probability Problem Set #1

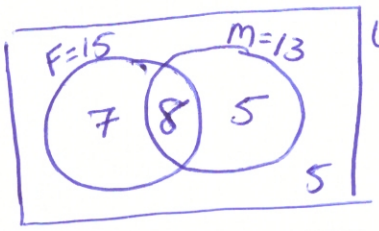
3B

① 35 children: 10 Blonde hair
14 Brown eyes
4 Both



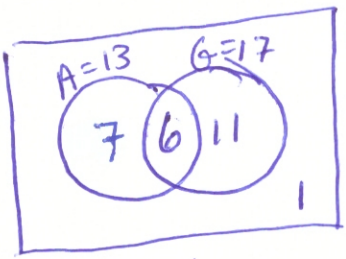
$P(BH \cup BE) = \frac{20}{35}$

② 25 students: 15 French
13 Malay
5 neither



$P(F \cap M) = \frac{8}{25}$

③ 25 Girls: 13 Aerobics
17 Gymnastics
1 Neither

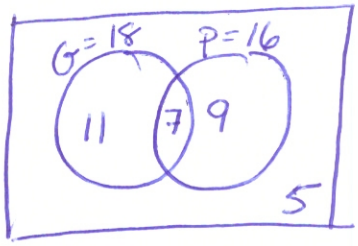


6 did both

a) $P(A \cap G) = \frac{6}{25}$

b) $P(G \cap A') = \frac{11}{25}$

④ 32 Students: 18 Golf
16 Piano
7 Both



a) $P(G \cap P') = \frac{11}{32}$

b) $P(P \cap G') = \frac{9}{32}$

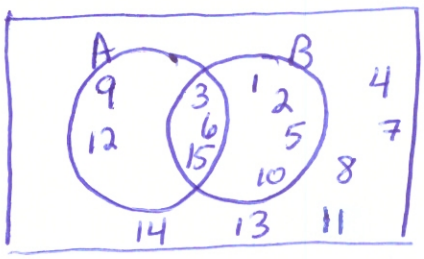
⑤ $U = \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15\}$

a)

(i) $A = \{3,6,9,12,15\}$

(ii) $B = \{1,2,3,5,6,10,15\}$

b)



c)

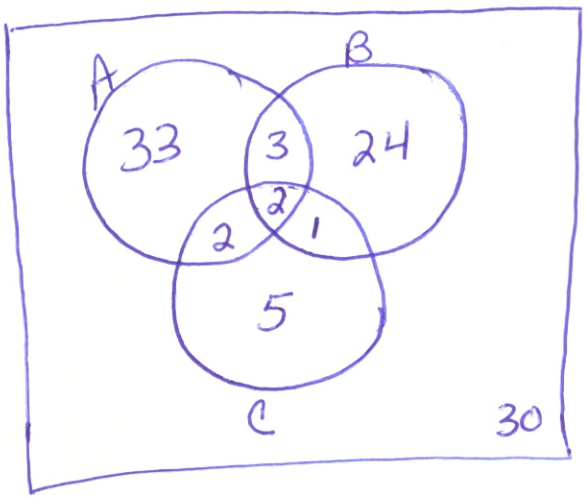
(i) $P(A \cap B) = \frac{3}{15}$

(ii) $P(A \cup B)' = \frac{6}{15}$

3B cont...

⑥

40% A
30% B
10% C
5% $A \cap B$
4% $A \cap C$
3% $B \cap C$
2% $A \cap B \cap C$



a) $P(A \cap B' \cap C') = \frac{33}{100}$

b) $P(B \cap A' \cap C') = \frac{24}{100}$

c) $P(A \cup B \cup C)' = \frac{30}{100}$

3C

② 10 sided Die

a) P(prime) $\frac{2,3,5,7}{1,2,3,4,5,6,7,8,9,10}$

$= \frac{4}{10}$

b) P(Prime ∪ mult of 4) $\frac{2,3,4,5,7,8}{1,2,3,4,5,6,7,8,9,10}$

$= \frac{6}{10}$

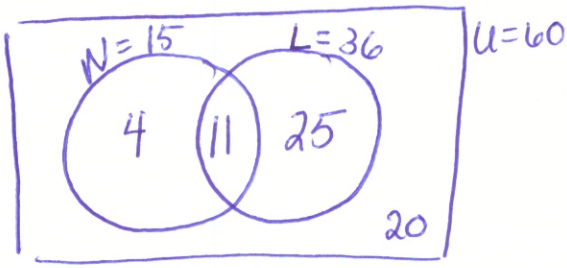
c) P(mult of 4 ∪ mult of 3) $\frac{3,4,6,8,9}{1,2,3,4,5,6,7,8,9,10}$

$= \frac{5}{10}$

⑥ $\frac{1}{3}$ no newspaper $= \frac{20}{60}$

$\frac{1}{4}$ National newspaper $= \frac{15}{60}$

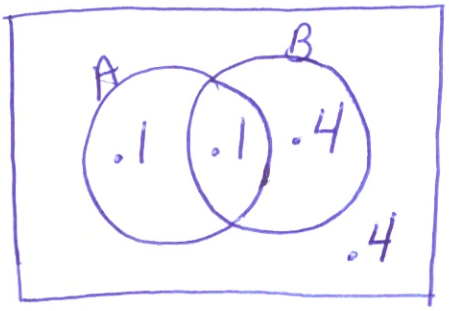
$\frac{3}{5}$ local Newspaper $= \frac{36}{60}$



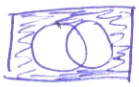
$P(N \cap L) = \frac{11}{60}$

3C Cont...

(8) $P(A) = .2$
$P(B) = .5$
$P(A \cap B) = .1$



a) $P(A \cup B) = .6$ 

b) $P(A \cup B)' = .4$ 

c) $P(A' \cup B) = .9$