5.1 pg. 270-272 #1-8

1ai) A = {apple, orange, pear} $A \cap B$ = apple.
B = {apple, banana}
ii) AUB = apple, orange, pear, banana
iii) apple, orange, pear, banana.
iv) apple, banana.
v) apple, orange, banana, pear

bi) $n(A) + n(B)$
$= 3 + 2$
$= 5$

ii) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$
$= 3 + 2 - 1$
$= 4$

iii) 5 iv) 4 v) 3

c) i) apple, orange
apple, pear
orange, pear

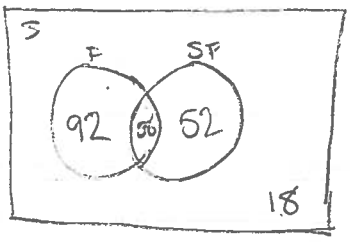
ii) apple, banana

iii) apple, orange
apple, pear
orange, pear

banana, apple
banana, pear
banana, orange

2a) 82 b) 10 c) 56 d) 9 e) 6 f) 50

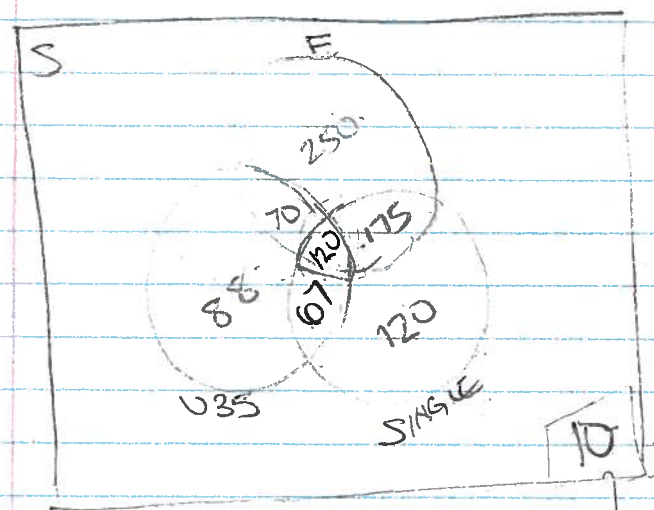
3)



4a) $n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(A \cap C) - n(B \cap C) + n(A \cap B \cap C)$
$= 40 + 60 + 50 - (25) - (20) - (20) + 10$
$= 95\%$

b) = 5%.
c) $5 + 15 + 25 = 45$
d) $20 + 25 + 5 = 50$
e) 85

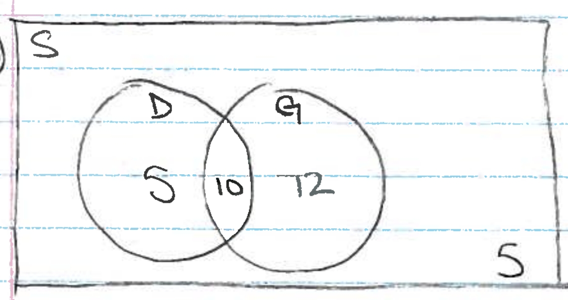
6)



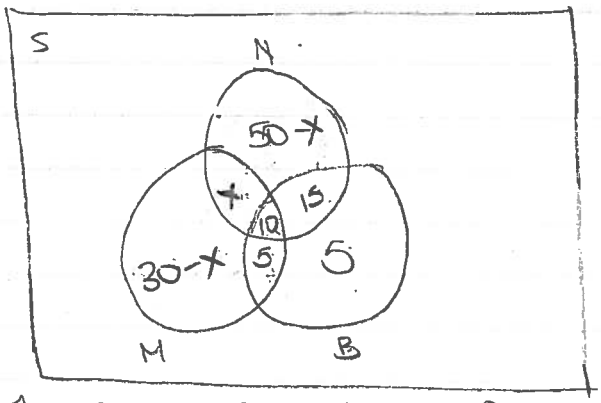
900 employees.
615 female
✓ 445 under 35
✓ 482 single
✓ 295 single females
single ... under 35
✓ ... singles under 35
✓ 120 are single females under 35

married males at least 35 (or over 35)

5)



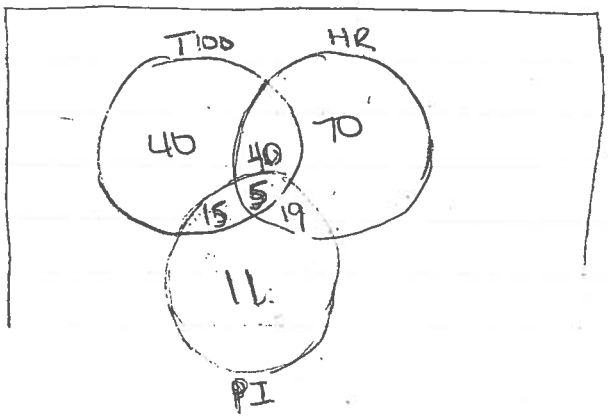
7a)



There are a maximum of 15

b) We are not given enough information. There are too many possible combinations to decisively make a conclusion.

8a)



T100 ∩ HR = 189

$n(\text{Total}) = n(T) + n(HR) + n(PI) - n(T \cap HR) - n(T \cap PI) - n(PI \cap HR) + n(T \cap HR \cap PI)$

$200 = 100 + 134 + 50 - (45) - (20) - (24) + n(T \cap HR \cap PI)$

$200 = 284 - 45 - 20 - 24 + x$

$200 = 195 + x$

$x = 5$

b) 40