(3)

p = The router can send packets to the server
q = it does support the new protocol
r = there is a connection
s = latest software release installed

$(\neg p \rightarrow \neg q),\ p \rightarrow s \wedge r,\ r \leftrightarrow \neg s\ ,\ \therefore \neg q$

Tabular form:

$\neg p \rightarrow \neg q$	$p \rightarrow s \wedge r$	$r \leftrightarrow \neg s$

$\therefore \neg q$

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(4) 10 W 9 M → 9 person
9 W 8 M 1 W + 1 M + 7 person

$\binom{9}{7} + \binom{9}{6}\cdot\binom{8}{1} + \binom{9}{5}\cdot\binom{8}{2} + \binom{9}{4}\cdot\binom{8}{3} + \binom{9}{3}\cdot\binom{8}{4} + \binom{9}{2}\cdot\binom{8}{5} + \binom{9}{1}\cdot\binom{8}{6} + \binom{8}{7}$

more women

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(5) a) $2^4 = 16$

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(1)

2,4,4,4 → 4 probability
3,4,4,4 → 4 probability
3,3,4,4 → 6 probability
3,3,3,4 → 4 probability
4,4,4,4 → +1 probability
19 probability

(2)

a)

Balls	container
	(1)
(1)(1)(1)	(1)
	1
.	(1)

0 → ball
1 → slot
(1) → placed ball

n balls r container

$\frac{n-1!}{(n-r)!(r-1)!}$ $\frac{7!}{4!3!} = \frac{7.6.5.4.3.2.1}{4.3.2.1.3.2.1}$

35

b)

Balls	container
	(1)
1111	(1)
	(1)
	(1)

35

or

Balls	container
	1
(1)(1)	1
	1
	(1)(1)

21

n=8 r=3

$\frac{n-1!}{(n-r)!(r-1)!}$

$\frac{7!}{5!2!} = \frac{7.6}{2} = 21$

35+21 = 56

```
public class displaySubset {
public static void main(String[] args) {
int arr[]= {1,2,3,4,5,6,7};
System.out.println("Will be display any subset that 4 element:");
for(int i=0;i<4;i++) {
int a=(int)(Math.random()*6);
System.out.print(" "+arr[a]);
}
}
}
```