1A.

```
> 1- pnorm(2.5)
[1] 0.006209665
```

So around 62%

1B.

```
> pnorm(1.2) - pnorm(-0.4)
[1] 0.5403521
```

So around 54%

1C.

```
> pnorm(2) - pnorm(0.5)
[1] 0.2857874
```

So around 28.6%

1D.

```
> qnorm(0.7)
[1] 0.5244005
```

So around 52%

2A.

Not really sure about this one, eliminated all the invalid (WL combos)

(WWW,
WWL
WLW)

For 1st rank:

$x^{(2)}+3(1-x)x^{(2)}=0.959$

X = 0.72475175

For 10th rank:

x^(2)+3(1-x)x^(2)=0.910

X = 0.68290516

For 20th rank:

x^(2)+3(1-x)x^(2)=0.893

X = 0.66976446

For 30th rank:

x^(2)+3(1-x)x^(2)=0.884

X = 0.66301984

2B.
Equally not sure, should be similar to the other formula as the previous one but backwards

Unless i'm mistake the only valid one here is LWW, because if you lost ⅓ you're only way of winning is to win the other too

So x^2 = (prob)

For 1st rank

x^2 = 0.500

X = 0.70710678

For 10th rank

x^2 = 0.405

X = 0.63639610

For 20th rank

x^2 = 0.349

X = 0.59076221

For 30th rank

x^2 = 0.325

X = 0.57008771

The probability seems to be lower for part b, likely due to moral or some other factors

2C.

Again not sure

Any Given set?

Should be all possible winning combos then

WWW x^3
WLW 2*(x)^3*(1-x)
WWL 2*(x)^3*(1-x)
LWW 2*(x)^3*(1-x)

So should be −6x4+7x^3 = p

For 1st rank

-6x^(4)+7x^(3) = 0.835

X = 0.64287251

For 10th rank

-6x^(4)+7x^(3) = 0.835

X = 0.61460442

For 20th rank

-6x^(4)+7x^(3) = 0.720

X = 0.59394426

For 30th rank

-6x^(4)+7x^(3) = 0.698

X = 0.58470457

2D.

I don't really understand the question but i'm guessing i'm doing 2A with 2B's numbers.

For 1st rank:

x^(2)+3(1-x)x^(2)= 0.70710678

X = 0.54775649

For 10th rank:

x^(2)+3(1-x)x^(2)= 0.63639610

X = 0.50652469

For 20th rank:

x^(2)+3(1-x)x^(2)= 0.59076221

X = 0.48053119

For 30th rank:

x^(2)+3(1-x)x^(2)= 0.57008771

X = 0.468847

3A. 36 possible combinations, 6 are doubles, so 6/36 or ⅙.

3B. only 2 and 3 are <= to 3, only one way to get 2 (1-1) and two ways to get 3(2-1, and 1-2) so 3/36 or `1/12

3C. Event's are independent if the occurrence of one event does not affect the probability of the other happening.

So the events are not independent as the probability of each occurring is linked to the other.

3D. Rolling doubles is a good example, because rolling doubles affect the sum of the roles, they affect each other and therefore are not independent.