Q1

2^1 \* 3^1 \* 2^1 = 12

Q2A)

(number of ways to arrange the top 8 of 30 runners)

30! / (30-8)!

=2.35X 10^11

B)

J--, -J-, --J

29 X 28 +30 X 28 + 30X 29 = 2522

3 x P(29,7) = 3 x 29 x 28 x 27 x 26 x 25 x 24 x 23

Q3

A)without restrictions: 9! = 362880

b) western tgt and romans tgt: wwwww rrrr or rrrr wwwww

=2 \*5! \*4!

c) westerns tgt: 5! = wwwww---- or -wwwww--- or –wwwww—or --- wwwww- or ---- wwwww

= 5!\*4!\*5

d) no two western tgt: 4!\*5!

Q4

1. 20C15 X 15! = 2.03 X 10^16
2. 20C10 X15P10 =20c10 x 15c10 x10!

Q5

Ternary string: either 0,1,or 2

No “1”s

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2^4=16

Q6

Word: STATISTICS

Distinguishable arrangements = 10! / 3!2!3!

=50400

Q7wrong(on the notes paper alr)

Distinguishable arrangements = 10C3 / 3! = 20