1)

DNA Sequence: a c c g t a g c c g g a t a t a c

Complement: t g g c a t c g g c c t a t a t g

Reverse Complement:

g t a t a t c c g g c t a c g g t

2)

i)

a) There are 46 chromosomes in the human genome in 23 pairs.

b) and c) – Using GRCh38.p12:



2)

ii)

The two main genes associated with breast cancer are: BRCA1 and BRCA2.

Mutations of the BRCA1 appear to be associated with the largest percentage of inherited breast cancers.

1) Gene name: BRCA1

2) Chromosome it is present in: 17

3) Exact coordinates in which it is present: 17q21.31

4) Gene length in bp: 106K

5) Main protein products length: 1,863 aa, breast cancer type 1 susceptibility protein isoform 1