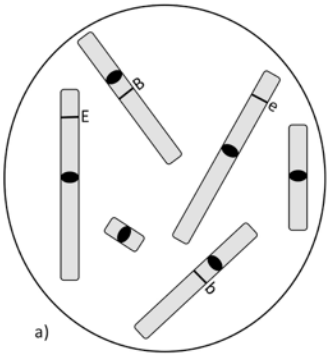
PRACTICE QUESTIONS ON PLOIDY AND ON CHROMOSOME NUMBER

1. The diagrams below represent eukaryotic cells with their chromosomes.The black ovals indicate the location of the centromeres; the thin black lines show the position of loci of interest (the ***e****xtension* and the ***b****rown loci*,respectively) on the chromosomes. For each *locus*, the upper- and lower-case letters (*e.g.* E and e) represent two different alleles of the *locus*. Indicate the ploidy of each cell (*e.g.* haploid/1n, diploid/2n, *etc.*) and the total number of chromosomes that it has. Provide a justification or relevant observations as requested.



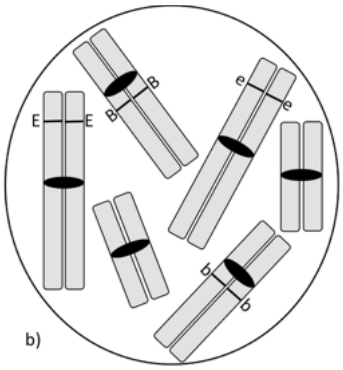
Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____



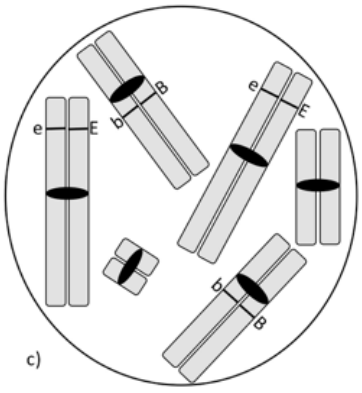
Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____



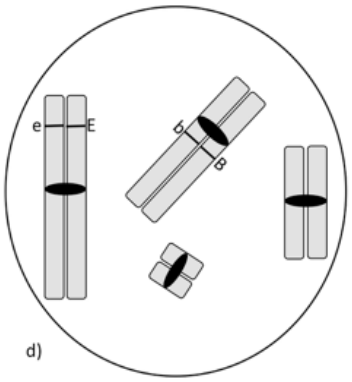
Ploidy: _____

Number of chromosomes: _____

Observation (is there anything "strange" here?): _____

_____

_____



d)

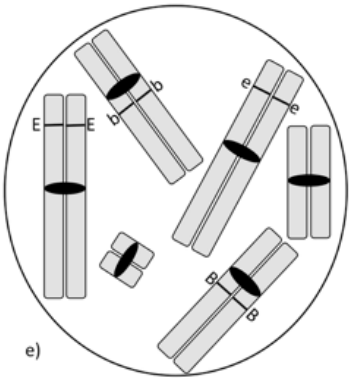
Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____



e)

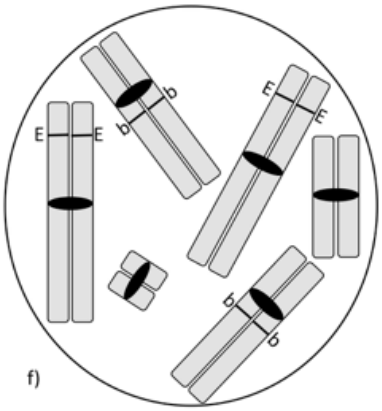
Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____



f)

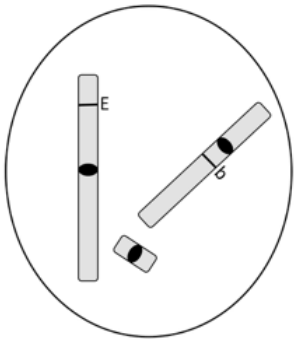
Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____



g)

Ploidy: _____

Number of chromosomes: _____

Justification: _____

_____

_____

2. What are the differences between cells represented e) and in f) above (question 1)?

3. Which of the cells represented in Question 1 have already undergone DNA replication? Please include the evidence that you used and your logic.

4. Think back to when you were answering Question1. What diagram/cell was the most challenging to interpret and decide the ploidy of? What made it so challenging?