G11 Biology: Class 3 Homework

1. List three advantages of asexual reproduction. [3 marks]

2. When is the production of genetically identical offspring a disadvantage? Explain your reasoning. [3 marks]

3. Describe the added "costs" of sexual reproduction for an organism. [3 marks]

4. Describe the key event involving chromosomes that take place during the following portions of the cell cycle in mitosis and sketch a diagram. [12 marks]

Event	Description	Diagram
Interphase		
Prophase		

Metaphase	
Anaphase	
Telophase	
Cytokinesis	

5. Outline the key steps involved in cloning Dolly the sheep. [4 marks]

6. How has the use of genetic engineering and cloning benefitted people suffering from diabetes? [3 marks]

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- 7. How do each of the following contribute to genetic variation in offspring? [6 marks]
 - a. Crossing over
 - b. Random assortment of homologous chromosomes
 - c. Fertilization
- 8. Complete the following table. [15 marks]

	Human	Earthworm	Hedgehog	Broccoli		
Before Meiosis						
Chromosome number (haploid or diploid)	46					
Number of pairs of homologous chromosomes			45			
After Meiosis I						
Chromosome number (haploid or diploid)		18				
After Meiosis II						
Chromosome number (haploid or diploid)				9		
Number of pairs of homologous chromosomes	0					

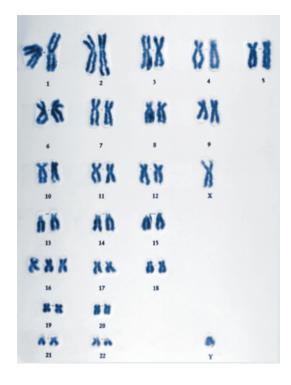
9. How many different arrangements of chromosomes are possible in gametes if the cell at the beginning of meiosis has 10 chromosomes? [2 marks]

10. How can it be beneficial for an organism to produce only one large egg during oogenesis and have three polar bodies that die? [2 marks]

11. How can it be beneficial for males to produce very large numbers of very small sperm? [2 marks]

12. Why do you think there are more types of trisomy disorders than monosomy disorders? [2 marks]

13. Examine the karyotype below:



- a) What is the gender of the individual?[1 mark]
- b) Could this be the karyotype of a human sperm cell? Explain your reasoning?[2 marks]
- c) What evidence is there of non-disjunction?[1 mark]