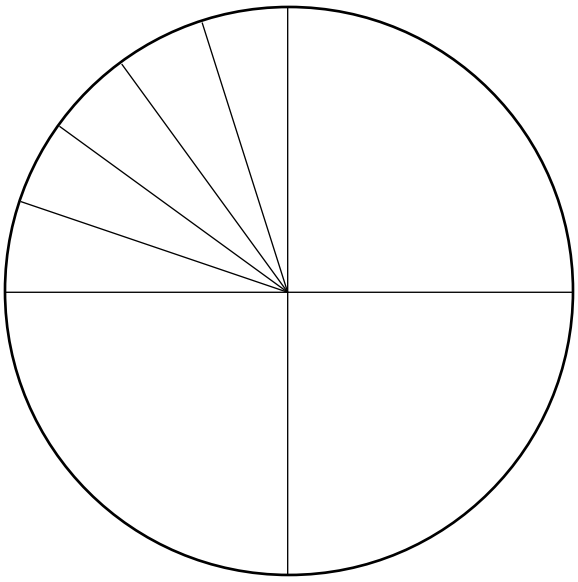
Name _____ Due Date _____

Test 5 Study Guide, Part 1 –Cell Division (BIO.5a-b) (35pts)

Cell Cycle (10 pts)
Draw a model of the cell cycle. Include and label the following phases in the correct order: interphase, gap 1, synthesis, gap 2, mitosis (with all phases included), and cytokinesis.



Complete the following chart to describe what is happening in each part of the cell cycle. Make sure the phases are in the correct order.

Phase Name		What happens during this phase?
Interphase		
M-phase		

Explain the difference between normal cells and cancer cells. What causes cancer?

Mitosis (7pts)
Describe the product of mitosis:

- Cell type (body cell or sex cell): _____
- How many daughter cells? _____
- How do the daughter cells compare to each other (identical or different)? _____

Describe the 3 functions of mitosis. Why do organisms perform mitosis?

1.
2.
3.

Draw the 4 phases of mitosis. Label each picture with the phase name.

Picture				
Phase name				

Chromosomes (3 pts)
Describe the function of chromosomes.

Explain human chromosomes:

- How many do we have total? _____
- How many homologous pairs do we have? _____
- Where do people get them? _____

Describe what a "homologous pair of chromosomes" is. How are they related, and where do they come from?

Meiosis (6 pts)
Describe the product of meiosis (how many cells, how do they compare, and are they diploid or haploid).

- Cell type (body cell or sex cell): _____
- How many daughter cells? _____
- How do the daughter cells compare to each other (identical or different)? _____

Describe what happens during crossing over.

Describe independent assortment.

Explain why crossing over and independent assortment are important. What do they increase?

Explain why genetic diversity is important in a group of organisms.

Explain the difference between sexual and asexual reproduction.

- Asexual reproduction _____
- Sexual reproduction _____

List 2 examples of gametes (sex cells).

1.
2.

Describe the function of gametes. (Hint: fertilization)

Explain how meiosis is able to reduce the number of chromosomes to half the normal amount in its daughter cells. (Hint: number of divisions)

Meiosis vs. Mitosis (9 pts)
Write each of the following terms in the correct part of the Box-and-T chart below

Half of normal chromosome number in daughter cells		one cell division	two cell divisions	making sex cells (gametes)
growth	Healing & repair	asexual reproduction	sexual reproduction	division of the nucleus
DNA replicated beforehand	crossing over	independent assortment	homologous chromosomes pair up	daughter cells genetically identical
daughter cells genetically unique	2 daughter cells	4 daughter cells	Normal chromosome number in daughter cells	increases genetic diversity

Both mitosis and meiosis…

Only mitosis…	Only meiosis