

Hamilton Biology: Unit 4 Cell Division Review Worksheet

Name: _____

Date: _____

- 1) Prokaryotic cells are less complex than eukaryotic cells because they lack a membrane bound nucleus and organelles. Prokaryotes undergo asexual reproduction through the process of...
 - a) Binary Fission
 - b) Mitosis
 - c) Meiosis
 - d) Prophase I

- 2) A gene can be defined as which of the following:
 - a) A structure that contains both DNA and protein
 - b) A piece of RNA that takes on a circular shape
 - c) A structure that contains DNA, but no protein
 - d) A segment of DNA that codes for a protein

- 3) The process of cell division (mitosis) results in which of the following:
 - a) Sister chromatids
 - b) Mitosis
 - c) Two daughter cells
 - d) Unregulated growth

- 4) Homologous (similar size, shape, information) chromatids are attached to each other at an area call the...
 - a) Centriole
 - b) Spindle
 - c) Centromere
 - d) Chromosome

- 5) If a human body cell has 24 chromosomes, how many chromosomes will each of its daughter cells have after mitosis?
 - a) 12
 - b) 6
 - c) 20
 - d) 24

- 6) If a human body cell has 48 chromosomes, how many chromosomes will exists in each of its gametes?
 - a) 8
 - b) 24
 - c) 48
 - d) 50

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- 7) At the beginning of mitosis, chromosomes consist of these structures that contain genetic material in the form of DNA....
- Centromeres
 - Centrioles
 - Chromatids
 - Spindle
- 8) The phase of mitosis during which chromosomes become visible, the nuclear membrane disappears, and spindle fibers form is called...
- Metaphase
 - Telophase
 - Prophase
 - Interphase
 - Anaphase
- 9) Uncontrolled, rapid cell division is most commonly referred to as which of the following:
- Eczema
 - Dermatitis
 - The common cold
 - Cancer
- 10) A scientist is looking under a microscope. What question should the scientist ask to determine if the cell is a body cell or a gamete?
- Are the cells diploid or haploid?
 - Is the cell found in humans?
 - Does the cell divide?
 - Does the cell have a nucleus?
- 11) In humans, a zygote will develop into a male if the...
- ...sperm and egg both contribute an X chromosome
 - ...sperm and egg both contribute a Y chromosome
 - ...egg contributes a Y chromosome and the sperm contributes an X.
 - ...egg contributes an X chromosome and the sperm contributes a Y.
- 12) Cell division is a process in which “if we cut ourselves, then our wound will....”
- Never get better
 - Divide into another wound
 - Heal
 - Cause our health to gradually decline

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***USE FOR QUESTION 13:** Within an individual mouse, four different mutations occurred in different genes, located on separate chromosomes and in different cells, as shown in the table below.

Cell Type	Chromosome	Trait	Normal Phenotype	Mutated Phenotype
skin	chromosome 4	fur color	black fur	white fur
gamete	chromosome 3	eye color	brown eyes	blue eyes
muscle	chromosome 2	fur thickness	thick fur	thin fur
nerve	chromosome 1	tail length	long tail	short tail

13) Which normal phenotype can be passed on to the mouse's offspring?

- a) White Fur
- b) Brown eyes
- c) Thin Fur
- d) Short tail

14) Which best describes the process of cytokinesis?

- A. Entire lifespan of the cell.
- B. Division of the cytoplasm
- C. Division of the nucleus
- D. Normal activities of the cell

15) Which does NOT contribute to genetic variation?

- a) Asexual reproduction
- b) Independent assortment
- c) Crossing Over
- d) Random Fertilization

16) Why is genetic variation so important?

- a) it provides that most genes are the same.
- b) it allows for creating pure breeds.
- c) it provides an assortment of genes from two organisms.
- d) it allows for organisms to create clones of themselves.

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17) Explain how the following terms are related to each other: DNA, centromere, chromosome, and chromatid.

18) List the following events in the correct sequence and describe what happens during each event: anaphase, metaphase, prophase, telophase.

19) If an organism has 50 chromosomes in their body's cells, how many will be in their gametes? Explain how to determine the correct answer?

20) Explain the difference between a gene and a chromosome?