Student Resources, Chapter 13

Ready to gauge your understanding? Answer the questions, then click Submit for your score. If you'd like to send the score to an instructor or to other students, just enter the appropriate e-mail addresses on the results page.

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Asexual reproduction

- is limited to single-celled organisms.
- is limited to plants.
- produces offspring that always look exactly like the parent.
- produces offspring that are genetically identical to the parent.
- leads to a loss of genetic material.

A human somatic cell contains _____ chromosomes.

- 23
- 47
- 46
- *n*
- 2*n*

Which of the following is a normal human female?

- *XXX*
- *XXY*
- *X*
- *XY*
- *XX*

Unless the chromosomes were stained to show band patterns, a karyotype would be least likely to show which of the following?

- the attachment of a large part of a chromosome to another chromosome
- a missing chromosome
- an extra chromosome
- a large part of a chromosome duplicated
- part of a chromosome turned around

The diploid stage of a plant that exhibits an alternation of generations is the

- antheridium.
- archegonium.
- sporophyte.
- gametophyte.
- spore.

Replication of all of the chromosomal DNA occurs

- to repair gene damage caused by mutation.
- whenever a cell makes protein.
- in the cytoplasm of a eukaryotic cell.
- before a cell divides.
- whenever a cell needs RNA.

Mitosis and cytokinesis result in the formation of _____; meiosis and cytokinesis result in the formation of _____.

- 2 diploid cells ... 2 haploid cells
- 2 diploid cells ... 2 diploid cells.
- 4 haploid cells ... 2 diploid cells
- 4 diploid cells ... 4 haploid cells
- 2 diploid cells ... 4 haploid cells

Which of the following occurs during meiosis but not during mitosis?

- A spindle apparatus forms.
- Chromosomes condense.
- synapsis
- Chromosomes migrate to opposite poles.
- Chromosomes align at the metaphase plate.

At the end of telophase I of meiosis and cytokinesis, there are

- 4 diploid cells.
- 2 haploid cells.
- 4 haploid cells.
- 2 diploid cells.
- 1 haploid ovum and 3 polar bodies.

Synapsis occurs during

- metaphase I.
- anaphase I.
- cytokinesis.

- prophase II.
- prophase I.

During anaphase II,

- the cell is haploid.
- nuclei re-form.
- homologues separate and migrate toward opposite poles.
- sister chromatids separate and migrate toward opposite poles.
- chromosomes line up in one plane.

During anaphase I

- homologues separate and migrate toward opposite poles.
- nuclei re-form.
- the cell is haploid.
- chromosomes line up in one plane.
- sister chromatids separate and migrate toward opposite poles.

Cytokinesis is the

- independent assortment of chromosomes.
- transfer of genetic material involving sex pili.
- formation of tetrads.
- division of one cell into two.
- exchange of homologous regions of nonsister chromatids.

Centrioles separate during

- metaphase I and metaphase II.
- telophase I and telophase II.
- anaphase I and anaphase II.
- prophase I and prophase II.
- cytokinesis.

Crossing over occurs during

- metaphase I.
- prophase II.
- cytokinesis.
- prophase I.
- metaphase II.

Regions of chromosomes where nonsister chromatids cross over are called

- kinetochores.
- inversions.

inversions.

- homologues.
- tetrads.
- chiasmata.

In humans, the haploid number of chromosomes is 23. Independent assortment has the possibility of producing _____ different gametes.

- 2^{23}
- 24
- 100,000
- 1 million
- 23^2

Crossing over is

- making an RNA copy of a DNA strand.
- the exchange of homologous portions of nonsister chromatids.
- the movement of genetic material from one chromosome to a nonhomologous chromosome.
- the formation of tetrads.
- independent assortment of chromosomes.

Variation occurs when chromosomes are shuffled in _____ and fertilization.

- genetic drift
- natural selection
- meiosis
- mutation
- mitosis

Heritable variation is required for

- asexual reproduction.
- evolution.
- meiosis.
- mitosis.
- the production of a clone.

Submit for Grade

Note: answer choices in this exercise are randomized.