



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 In a human, what is the **ratio of the normal chromosome number** in a nucleus produced by **mitosis** to the normal chromosome number in a nucleus produced by **meiosis**?

- A 1:1
- B 2:1
- C 3:1
- D 4:1



2 The principles of **dominance**, **segregation**, and **independent assortment** were first described by

- A Watson
- B Linnaeus
- C Mendel
- D Morgan



3 In humans, the **gene for polydactyly (having extra fingers or toes) is dominant** over the gene for the normal number of digits. If parents who are both **homozygous dominant for polydactyly** have four children, how many of these children would most likely have extra fingers or toes?



4 A cross between two plants that have **pink flowers** produced plants that have **red, pink, or white** flowers. Which is the most likely explanation for these results?

- A Intermediate inheritance involved alleles that were not clearly dominant or recessive.
- B Mutations occurred during gametogenesis.
- C Crossing-over of white and red alleles occurred during meiosis.

5



## PREVIEW

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- B due to genetic changes and result in favorable variations
- C not due to genetic changes and result in unfavorable variations
- D not due to genetic changes and result in favorable variations

- C all the gametes produced by a population
- D the mutated alleles for a particular trait



9 A homozygous condition resulting in the formation of **abnormal hemoglobin that distorts certain blood cells** is known as

- A hemophilia
- B phenylketonuria
- C Tay-Sachs
- D sickle-cell anemia



10 Using the results of his experiments with **plant crosses**, Gregor Mendel discovered

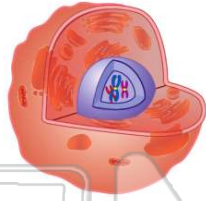
- A the principles of dominance, segregation and independent assortment
- B that pea plants develop mutation after exposure to radiation
- C intermediate inheritance and gene linkage
- D that DNA is involved in the inheritance of dominant traits



## ANSWER KEY

In a human, what is the **ratio of the normal chromosome number** in a nucleus produced by **mitosis** to the normal chromosome number in a nucleus produced by **meiosis**?

- A 1:1
- B 2:1
- C 3:1
- D 4:1



(b)

The principles of **dominance**, **segregation**, and **independent assortment** were first described by

- A Watson
- B Linnaeus
- C Mendel
- D Morgan



(c)

In humans, the **gene for polydactyly (having extra fingers or toes)** is **dominant** over the gene for the normal number of digits. If parents who are both **homozygous dominant for polydactyly** have four children, how many of these children would most likely have extra fingers or toes?

- A 0
- B 1
- C 3
- D 4



(d)

A cross between two plants that have **pink flowers** produced plants that have **red, pink, or white** flowers. Which is the most likely explanation for these results?

- A Intermediate inheritance involved alleles that were not clearly dominant or recessive.
- B Mutations occurred during gametogenesis.
- C Crossing-over of white and red alleles occurred during meiosis.
- D Nondisjunction of homologous pairs of chromosomes occurred during meiosis.

(a)



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- C not due to genetic changes and result in unfavorable variations
- D not due to genetic changes and result in favorable variations

- C all the gametes produced by a population
- D the mutated alleles for a particular trait



A homozygous condition resulting in the formation of **abnormal hemoglobin that distorts certain blood cells** is known as

- A hemophilia
- B phenylketonuria
- C Tay-Sachs
- D sickle-cell anemia



(d)

Using the results of his experiments with **plant crosses**, **Gregor Mendel** discovered

- A the principles of dominance, segregation and independent assortment
- B that pea plants develop mutation after exposure to radiation
- C intermediate inheritance and gene linkage
- D that DNA is involved in the inheritance of dominant traits

(a)