

Welle



**ASSIGN  
BUSTER**

What was the most significant conclusion that Gregor Mendel drew from his experiments with pea plants? A) There is considerable genetic variation in garden peas. B) Traits are inherited in discrete units, and are not the results of "blending." C) Recessive genes occur more frequently in the F1 generation than do dominant ones. D) Genes are composed of DNA. E) An organism that is homozygous for many recessive traits is at a disadvantage.

2) How many unique gametes could be produced through independent assortment by an individual with the genotype AaBbCCDdEe? Write down the gametes.) Why did Mendel continue some of his experiments to the F2 or F3 generation? A) to obtain a larger number of offspring on which to base statistics B) to observe whether or not a recessive trait would reappear C) to observe whether or not the dominant trait would reappear D) to distinguish which alleles were segregating E) to be able to describe the frequency of recombination 4) Two plants are crossed, resulting in offspring with a 3:1 ratio for a particular trait.

What does this suggest? 5) The fact that all seven of the pea plant traits studied by Mendel obeyed the principle of independent assortment. What does this suggest about the seven traits studied by Mendel? 6) In the cross AaBbCc x AaBbCc, what is the probability of producing the genotype AABBCC 7) Given the parents AABBcc x AabbCc, assume simple dominance for each trait and independent assortment. What proportion of the progeny will be expected to phenotypically resemble the first parent? ) Which of the following is the best statement of the use of the addition rule of probability? A) the probability that two or more independent events will both occur B) the probability that two or more independent events will both occur in the

offspring of one set of parents C) the probability that either one of two Independent events will occur D) the probability of producing two or more heterozygous offspring E) the likelihood that a trait is due to two or more meiotic events 9) Radish flowers may be red, purple, or white.

A cross between a red-flowered plant and a white-flowered plant yields all-purple offspring. The part of the radish we eat may be oval or long, with long being the dominant characteristic. \*\*\* If true-breeding red long radishes are crossed with true-breeding white oval radishes, what will the F1 phenotype? flower color trait in radishes is an example of which of the B) sex linkage C) codominance D) incomplete dominance E) epistasis 10) Gene S controls the sharpness of spines in a type of cactus.

Cactuses with the dominant allele, S, have sharp spines, whereas homozygous recessive ss cactuses have dull spines. At the same time, a second gene, N, determines whether or not cactuses have spines.

Homozygous recessive nn cactuses have no spines at all. \*\*\* The relationship between genes S and N is an example of A) incomplete dominance. B) epistasis. C) complete dominance. D) pleiotropy. E) codominance. 1) Women (and all female mammals) have one active X chromosome per cell instead of two. What causes this?

A) modification of the XIST gene so that it is active only on one X chromosome, which then becomes inactive B) activation of the Barr gene on one of the two X chromosomes that then inactivates C) crossover between the XIST gene on one X chromosome and a related gene on an autosome D) inactivation of the XIST gene on the X chromosome derived from the male

parent E) the removal of methyl (CH<sub>3</sub>) groups from the X chromosome that will remain active 12) Which of the following statements is true of linkage? A) The closer two genes are on a chromosome, the lower the probability that a crossover will occur between them.

B) The observed frequency of recombination of two genes that are far apart from each other has a maximum value of 100%. C) All of the traits that Mendel studied-seed color, pod shape, flower color, and others-are due to genes linked on the same chromosome. D) Linked genes are found on different chromosomes. E) Crossing over occurs during prophase II of

meiosis. 13) What does a frequency of recombination of 50% indicate? A) The two genes are likely to be located on different chromosomes. B) All of the offspring have combinations of traits that match one of the two parents.

C) The genes are located on sex chromosomes. D) Abnormal meiosis has occurred. E) Independent assortment is hindered. 14) Map units on a linkage map cannot be relied upon to calculate physical distances on a chromosome for which of the following reasons? A) The frequency of crossing over varies along the length of the chromosome. B) The relationship between recombination frequency and map units is different in every individual. C) Physical order on the chromosomes is slightly different in every individual. E)

Linkage map instances are identical between males and females. 5) Which of the following is known as a Philadelphia chromosome? A) a human chromosome 22 that has had a specific translocation B) a human chromosome 9 that is found only in one type of cancer C) an animal chromosome found primarily in the mid-Atlantic area of the United States D) an imprinted chromosome that always comes from the mother E) a

chromosome found not in the nucleus but in mitochondria 16) The following is a map of four genes on a chromosome. Figure 1 Between which two genes would you expect the highest frequency of recombination? A) A and W

B) w and E C) E and G D) A and E E) A and G 17) How do we describe transformation in bacteria? A) the creation of a strand of DNA from an RNA molecule B) the creation of a strand of RNA from a DNA molecule C) the infection of cells by a phage DNA molecule D) the type of semiconservative replication shown by DNA E) assimilation of external DNA into a cell 18)

Cytosine makes up 42% of the nucleotides in a sample of DNA from an organism. Approximately what percentage of the nucleotides in this sample will be thymine? 19) What is meant by the description " antiparallel" regarding the strands that make p DNA?

A) The twisting nature of DNA creates nonparallel strands. B) The 5' to 3' direction of one strand runs counter to the 5' to 3' direction of the other strand. C) Base pairings create unequal spacing between the two DNA strands. D) One strand is positively charged and the other is negatively charged. E) One strand contains only purines and the other contains only pyrimidines. 20)An Okazaki fragment has which of the following arrangements? A) primase, polymerase, ligase B) 3' RNA nucleotides, DNA nucleotides 5' C) 5' RNA nucleotides, DNA nucleotides 3' D) DNA polymerase I, DNA polymerase.