

Answers to Quiz Review

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1. C 2. A 3. A 4. C 5. C
 6. D 7. D 8. D 9. D

#13 - 25

13. 1 YY : 2 Yy : 1 yy

	Y	y
Y	YY	Yy
y	Yy	yy

14. A gene has multiple alleles if it has more than two possible ALLELES in the population, such as human blood types (A, B or O). Two or more GENES control polygenic traits (such as skin color in humans – controlled by several genes).

15. With two alleles for a trait, up to three phenotypes are possible. With three alleles, up to six phenotypes are possible.

16. No, genes provide a plan for development, but how the plan unfolds depends on the environment.

17. Four.

18. Homozygous black coat: BB; Heterozygous black coat: Bb

19. Meiosis is a process of reduction division in which the number of chromosomes per cell is cut in half through the separation of homologous chromosomes.

20. DNA replicates during interphase so that during meiosis I, all of the chromosomes are doubled and consist of duplicate chromosomes (sister chromatids). At anaphase I, the homologous chromosomes separate, with the sister chromatids still together, as two haploid daughter cells form. During meiosis II, the sister chromatids separate to produce four haploid daughter cells.

21. It is the chromosomes that are separated during gamete formation. The genes are linked to the chromosomes.

22. By crossing the white ram to a number of black ewes; if any offspring are black, then the white ram is heterozygous.

23.

	Mitosis	Meiosis
Number of cells produced	2	4
Type of cell	body	gamete
Chromosome number	Diploid (2N)	Haploid (N)

24. Both parents are heterozygous.

25. The predicted outcome of the cross is 50% rough and 50% smooth. However, since the result of each fertilization (joining of egg and sperm) is independent of any previous fertilization, it is possible for all offspring to have smooth coats.