REVIEW FOR GENETICS / HEREDITY TEST

NAME _____ HR___

/48

True or false

1. ____ One gene always codes for just one trait
2. ____ The environment cannot affect traits
3. ____ Several genes can influence a single trait

4. How are sex cells different from other human cells?

5. Why do sex-linked disorders occur more often in males?

6. Instructions for an inherited trait are called

7. What is the name for the way cells divide in order to make 2 new identical cells?

8. Two forms of a gene, one from each parent, are called

9. What is it called when cells are copied with half the number of chromosomes?

True or false

10. ____ asexual reproduction takes one parent
11. ____ asexual reproduction makes clones
12. ____ asexual reproduction creates many variations
13. ____ asexual reproduction may result in the easy destruction of a population (due to virus, infection, etc.)

14. What is the biggest advantage of asexual reproduction?

15. If two parents' alleles come together and make a completely new trait, a blending of the two of them, this is called what? [Example -- a long-haired mammoths and a short-haired mammoth makes a medium-haired mammoth]

16. What step did Mendel take to be sure that his pea plants cross-pollinated? _____
    _____

17. When does asexual reproduction happen in humans? _____

18. This diagram is used to trace a trait through generations of a family. _____

19. Offspring that are different from both parents are produced by _____

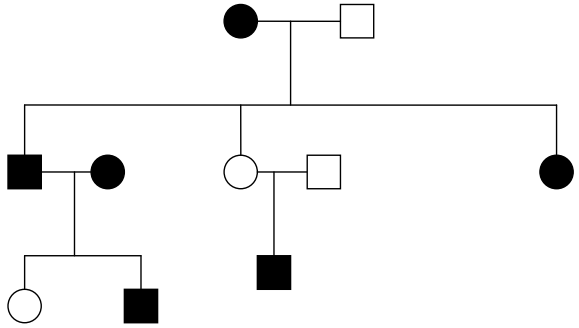
20. In humans, what are the sex chromosomes of females? _____

21. In humans, what are the sex chromosomes of males? _____

22. Since sex cells only have half the chromosomes that are found in a regular cell, how do they grow into cells that have a full set of chromosomes? _____

23. What is this diagram called? _____
24. What do the squares represent? _____
25. What do the circles represent? _____
26. How many children do Mr. and Mrs. Smith have? _____
27. How many sons? _____
28. How many daughters? _____
29. How many of the Smith's children are married? _____
30. How many grandchildren do the Smith's have? _____
31. Can Mr. Smith roll his tongue? _____
32. Can the Smith's grand-daughter roll her tongue? _____
33. Can either the first born son or his wife be homozygous dominant? WHY or WHY NOT? (2pts)

Tongue rollers in the Smith Family (shaded)
This is a dominant trait



_____

Matching

a. sexual reproduction
b. asexual reproduction
c. binary fission
d. budding
e. vegetative reproduction
f. fragmentation
g. parthenogenesis

34. _____cells split in half
35. _____rhizomes or bulbs that make clone plants in new places
36. _____2 parent reproduction- creates variety in offspring
37. _____broken pieces of the parent grow into offspring
38. _____1 parent reproduction- creates clones
39. _____offspring sprouts out of the parent then breaks off
40. _____an egg turns into offspring even though it has not been fertilized by a male

Use the terms from the following list to complete the sentences below. NOT ALL ARE USED!

sexual	dominant traits	phenotype	uppercase
asexual	recessive traits	genotype	pedigree
probability	lowercase	heredity	DNA

41. _____ are hidden by dominant genes, but can reappear later if 2 homozygous recessive genes are given to the offspring.

42. An organism's appearance is its _____.

43. If each parent has the same recessive trait, the _____ of the offspring having the trait goes up.

44. Scientists have learned that traits are inherited through the genetic code of _____.

45. The passing of traits from parents to offspring is called _____.

46. When writing allele pairs, the recessive allele is written with a(n) _____ letter.

47. Only one parent cell is needed in _____ reproduction.

Punnett Square Practice Worksheet #4 NAME_____HR__ /29

Part A: Vocabulary - Match the definitions on the left with the terms on the right.

_____1. genotypes made of the same alleles	A. alleles
_____2. different forms of genes for a single trait	B. dominant
_____3. gene that is always expressed	C. heterozygous
_____4. gene that is expressed only in the homozygous state	D. homozygous
_____5. genotypes made of two different alleles	E. recessive

Circle the choices that are examples of each of those words.

6. **Homozygous dominant** AA Gg KK mm uu Rr TT

7. **Homozygous recessive** ee Ff HH Oo qq Uu ww

8. Genotypes in which <u>dominant gene</u> must show

AA Dd EE ff Jj RR Ss

9. Genotypes in which <u>recessive gene</u> must show

aa Gg Ff KK rr Oo Tt

Part B: Punnett Squares

10. Examine the following Punnett squares and circle those that are correct.

	D	d
d	Dd	dd
d	Dd	dd

	D	D
d	Dd	DD
d	Dd	Dd

	A	a
A	AA	aa
a	Aa	Aa

	A	a
a	Aa	aa
a	Aa	aa

11. What do the letters on the outside of the Punnett square stand for?

12. What do the letters on the inside of the Punnett square stand for?

13. In corn plants, normal height, N, is dominant to short height, n. Complete these four Punnett squares showing different crosses. Then, circle all of the homozygous dominant offspring. Put an X through all the heterozygous offspring. Leave all the homozygous recessive offspring unshaded. (4PTS)

	N	N
n		
n		

	N	n
N		
N		

	N	n
N		
n		

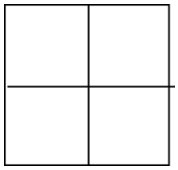
	N	n
n		
n		

14. In guinea pigs, short hair, S, is dominant to long hair, s. Complete the following Punnett squares according to the directions given. Then, fill in the blanks beside each Punnett square with the correct numbers.

a. The male guinea pig is Ss and the female is ss. What percent of their offspring might have: (2PTS)

_____Short hair

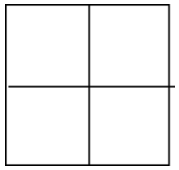
_____Long hair



b. Both guinea pigs are heterozygous for short hair. What percent of their offspring might have: (2PTS)

_____Short hair

_____Long hair

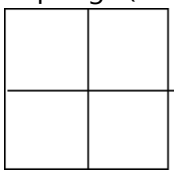


Part C: Monohybrid Cross Problems

15. Hornless (H) in cattle is dominant over horned (h). A homozygous hornless bull is mated with a homozygous horned cow. What are the possible genotypes and phenotypes of the offspring? (2PTS)

Genotype _____

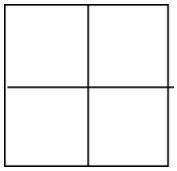
Phenotype _____



16. In tomatoes, red fruit (R) is dominant over yellow fruit (r). A plant that is homozygous for red fruit is crossed with a plant that has yellow fruit. What are the possible genotypes and phenotypes of the offspring? (2PTS)

Genotype _____

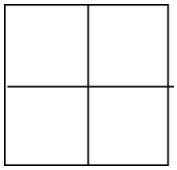
Phenotype _____



17. In humans, being a tongue roller (R) is dominant over non-roller (r). A man who is a non-roller marries a woman who is heterozygous for tongue rolling. (5PTS)

Father's phenotype _____Mother's phenotype _____

Father's genotype _____Mother's genotype _____



What is the probability of this couple having a child who is a tongue roller? _____