

Name _____ Block _____ Date _____

Quiz 10 – Mendelian Genetics (28 points)

Directions: Fill in the spaces using the words provided. No word will be used more than once. Not all words will be used. (7 points)

alleles	gametes	mitosis	one	sexual
asexual	genes	meiosis	recombined	two

- Mendel's laws of heredity describe mathematically patterns of inheritance from parents to offspring during _____ reproduction.
- Genetic traits are determined by _____.
- Alternate versions of a gene are called _____.
- In a parent, every trait is produced by at least _____ alleles.
- During _____, pairs of alleles (on homologous chromosomes) are segregated into haploid cells.
- These cells are used as _____ (sex cells) to produce offspring.
- Each sex cell from each parent only carries _____ allele per trait to pass on to offspring.

Directions: Fill in the spaces using the words provided. No word will be used more than once. Not all words will be used. (6 points)

dominant	Heterozygous	Phenotype
Genome	Homologous	recessive
Genotype	Homozygous	silent

_____ describes the genetic make-up of an organism for one trait.

_____ describes the organism's physical appearance based on its genes.

_____ individuals have two identical alleles for a particular trait.

_____ individuals have contrasting (differing) alleles.

When one allele masks the effect of another, that allele is called _____.

The other allele (the one that is hidden) is called _____.

Continued on the back.

Identify each of the following genotypes as homozygous dominant, homozygous recessive, or heterozygous. (3 points)

- Rr _____
- RR _____
- rr _____

In flies, red eye color (R) is dominant to white eye color (r). **Describe the phenotype** for each of the following genotypes. (3 points)

- Rr _____
- rr _____
- RR _____

For each of the following questions, answer using a percentage (%) or a ratio.

(1 point) In cows, long hair (L) is dominant to short (l). In a male cow with the genotype “LL”, what percentage of its sperm cells will carry the dominant allele (L)?

(4 points) In pea plants, green pea pods (G) are dominant to yellow (g). Two pea plants, each with the genotype Gg, are crossed as shown by the Punnett Square at right. What percentage of their offspring will:

	G	g
G	GG	Gg
g	Gg	gg

- be heterozygous _____
- be homozygous recessive _____
- have green pea pods _____
- have yellow pea pods _____

For each of the following problems, you **MUST** show a completed Punnett Square for full credit. In pea plants, tall plants (T) are dominant to short plants (t). If two heterozygous tall plants are crossed, what percent or ratio of the offspring will be short? (2 points)

_____ of the offspring will be short

Pea plants can have purple (P) or white (p) flowers. If one white pea plant (pp) is crossed with a purple pea plant (Pp), what percentage or ratio of offspring will be purple? (2 points)

_____ of the offspring will be purple