## Complete Dominance: Monohybrid/Dihybrid Crosses

## YOU MUST USE THE PUNNETTE SQUARES TO SHOW YOUR WORK!

## Complete Dominance: Monohybrid Cross

1. A homozygous tall plant (TT) is crossed with a heterozygous plant (Tt). What are the genotypes and phenotypes of the offspring? What is the probability of tall plants? Short plants?


Genotypes: $\qquad$
Phenotypes: $\qquad$
Probabilities: $\qquad$
2. A homozygous red flowered plant (RR) is crossed with a homozygous white plant (rr). What are the genotypes and phenotypes of the offspring? What is the probability of having white flowers \& why?


Genotypes: $\qquad$
Phenotypes: $\qquad$
Answer: $\qquad$
3. A man with hitchhiker's thumb $(\mathrm{Hh})$ and his wife who also has hitchhiker's thumb (Hh) are expecting a child. What is the probability that the child will also have hitchhiker's thumb? No hitchhiker's thumb?


Genotypes: $\qquad$
Phenotypes: $\qquad$

Answer: $\qquad$
4. In people, brown eyes (B) is dominant over blue eyes (b). Could a marriage between two blue-eyed people produce a brown-eyed child? Why or why not?


Answer: $\qquad$
$\qquad$
$\qquad$
5. A chicken with black feathers is crossed with another chicken with black feathers. Most of their offspring have black feathers and some have white feathers. How is this possible?


Parents' Genotypes: $\qquad$
Offspring's Genotypes: $\qquad$
Answer: $\qquad$

## Complete Dominance: Dihybrid Cross

1. a. A man has the genotype BbEE. He has brown hair and free earlobes. What are the different combinations of these alleles in his gametes? $\qquad$
b. This man met a woman with the genotype BBee, what are the different combinations of the alleles in her gametes? $\qquad$
If the man and woman mated, what would be the genotypes and phenotypes of their offspring?

c. Offspring's Genotype(s):
d. Offspring's Phenotype(s): $\qquad$
e. Probability of brown \& free: $\qquad$ brown \& attached: $\qquad$ blonde \& free: $\qquad$ blonde \& attached: $\qquad$
2. Diagram the Punnett square for the offspring between the genotypes GgMM (paternal) and ggmm (maternal). G is dominant for having a widow's peak and g is recessive for not having a widow's peak. M is dominant for having the ability to roll the tongue and $m$ is recessive for not having the ability to roll the tongue.

a. Man's allele combinations in his gametes: $\qquad$
b. Woman's allele combinations in her gametes: $\qquad$
c. Offspring's Genotype(s): $\qquad$
d. Offspring's Phenotype(s): $\qquad$
e. Probability of widow's peak \& roll: $\qquad$ widow's peak \& no roll: $\qquad$ no widow's peak \& roll: $\qquad$ no widow's peak \& no roll: $\qquad$
3. What does it mean when an inheritance pattern shows complete dominance?
