Mendelian Genetics Worksheet   Name_____Hour_____

Fill in the Punnett squares for each cross given to determine the phenotype and genotype ratio's of the offspring

Crosses with one homozygous dominant parent:

AA x AA	AA x Aa	AA x aa

	A	A
A		
A		

	A	A
A		
a		

	A	A
a		
a		

Offspring Genotypes:

  AA____ Aa____ aa____   AA____ Aa____ aa____   AA____ Aa____ aa____

Offspring Phenotypes:

  Dominant_____   Dominant_____   Dominant_____

  Recessive_____   Recessive_____   Recessive_____

Crosses with one heterozygous parent:

Aa x AA	Aa x Aa	Aa x aa

	A	a
A		
A		

	A	a
A		
a		

	A	a
a		
a		

Offspring Genotypes:

  AA____ Aa____ aa____   AA____ Aa____ aa____   AA____ Aa____ aa____

Offspring Phenotypes:

  Dominant_____   Dominant_____   Dominant_____

  Recessive_____   Recessive_____   Recessive_____

Crosses with one homozygous recessive parent:

aa x AA	aa x Aa	aa x aa

	a	a
A		
A		

	a	a
A		
a		

	a	a
a		
a		

Offspring Genotypes:

  AA____ Aa____ aa____   AA____ Aa____ aa____   AA____ Aa____ aa____

Offspring Phenotypes:

  Dominant_____   Dominant_____   Dominant_____

  Recessive_____   Recessive_____   Recessive_____

Refer to the crosses that you worked out on the front of this page to answer questions 1-8

1. What crosses will result in all dominant phenotype offspring?

2. What cross will result in all recessive phenotype offspring?

3. What cross will result in half dominant and half recessive phenotype offspring?

4. What cross will result in a ratio of 3 dominant phenotype offspring for every 1 recessive offspring?

5. What cross will result in a 1:2:1 genotype ratio in the offspring?

6. What cross will result in all homozygous recessive offspring?

7. What cross will result in half homozygous dominant offspring and half heterozygous offspring?

8. What cross will result in all heterozygous offspring?

9. In dogs, **black fur (B) is dominant** over yellow fur (b). A <u>homozygous black</u> dog is mated with a <u>yellow</u> dog. Do a punnett square to show the cross and predict the offspring (phenotypes and genotypes)

10. In dogs, **black fur (B) is dominant** over yellow fur (b). A <u>heterozygous black</u> dog is mated with a <u>yellow</u> dog. Do a punnett square to show the cross and predict the offspring (phenotypes and genotypes)