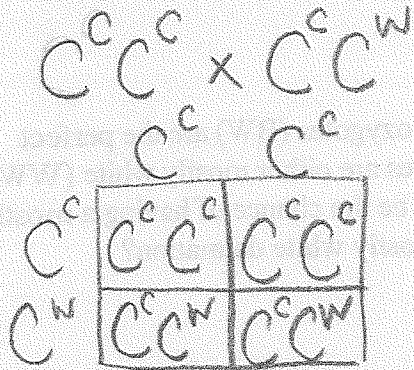


Co-dominance Problem Set

1. In horses, chestnut and white coat colors are codominant. Heterozygous horses have a blend of both colors, which creates a patchy coloured horse. Such heterozygous horses are known as palominos (like Mr. Ed). What would be the result of a chestnut crossed with a palomino?



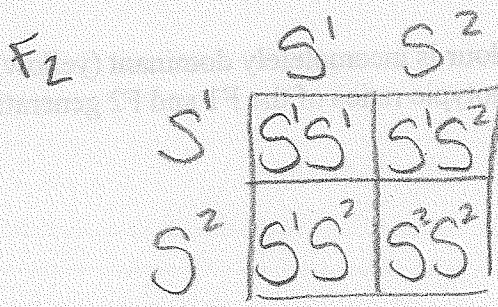
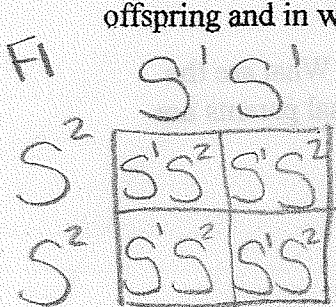
50% Chestnut 1:1  
50% Palomino

2. In a certain cactus, prickly spines can be two pronged or one pronged. If a true breeding one-pronged cactus is crossed with a true breeding two-pronged cactus, the F1 generation has a mixture of spines, some are two-pronged, some are one-pronged.

a. Is this an example of codominance or incomplete dominance? Explain

Co-dominance → BOTH full expressed will only get 1 phenotype/genotype → 3<sup>rd</sup> new phenotype is made

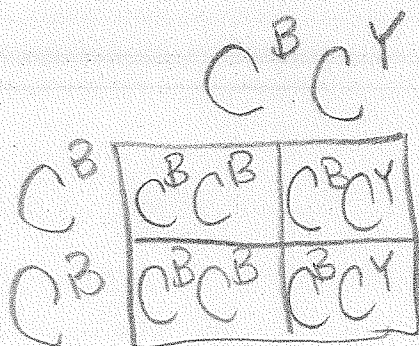
b. Show the F2 generation (a cross between the two F1's). What are the phenotypes of the offspring and in what proportion.



1:2:1  
1 one pronged : 2 both pronged : 1 two pronged

3. Coat colour in cats is a codominant trait. Cats can be black, yellow or calico. A calico cat has black and yellow splotches. In order to be calico, the cat must have an allele for the black color and an allele for the yellow color. A female calico cat is crossed with a male black cat. What are the phenotypes and genotypes of the offspring and in what proportion.

$C^B C^B \times C^Y C^Y \rightarrow C^B C^Y \rightarrow \text{calico}$



50% 1  $C^B C^B$  : 1  $C^B C^Y$   
1 black : 1 calico