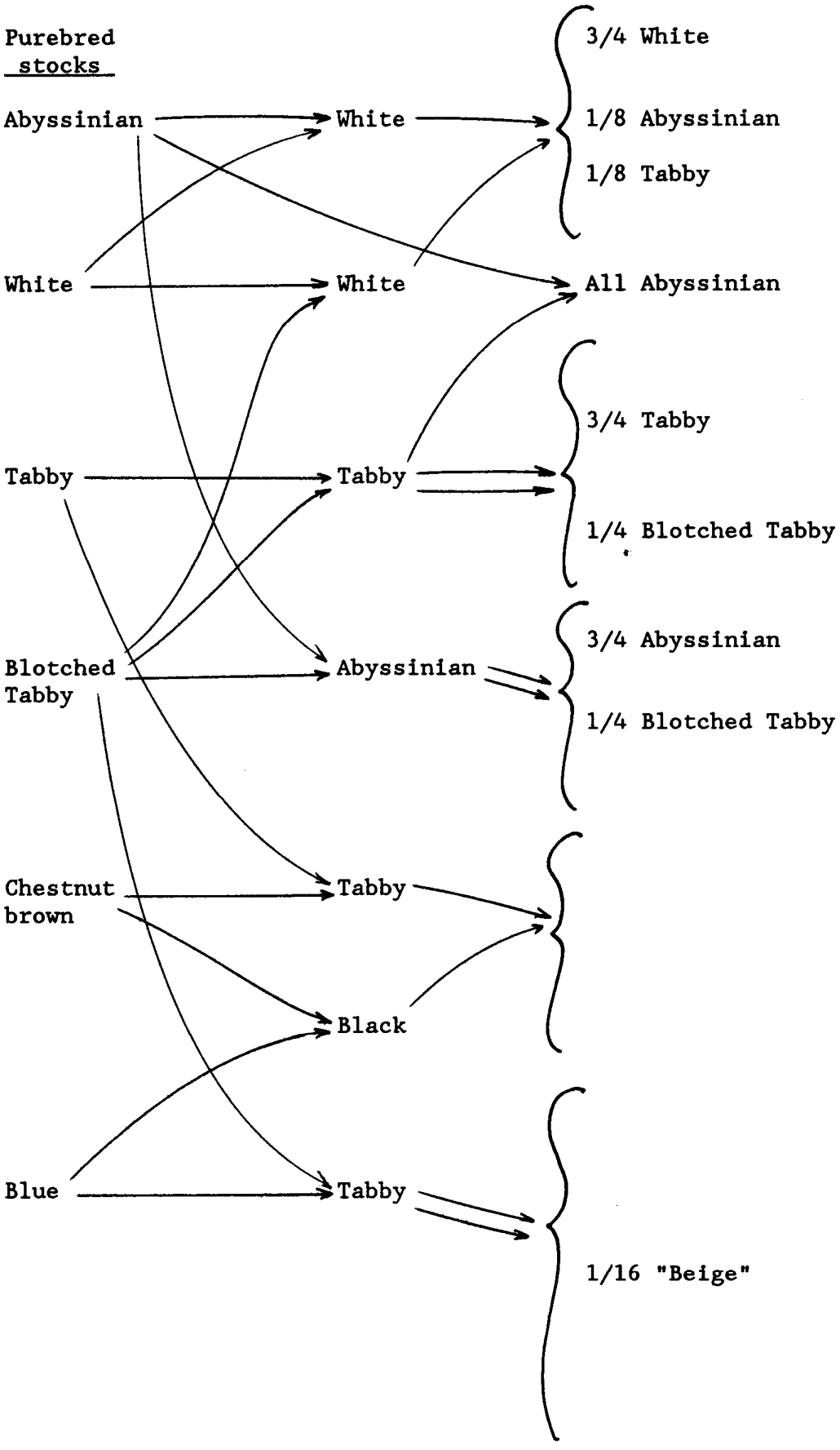
MORE HOMEWORK PROBLEMS GIVEN TO STUDENTS

1. Some color genetics in cats, *Felis domesticus*
2. Some common endosperm colors in corn seeds, *Zea mays*
3. Some color genetics of the "roof" rat, *Rattus rattus*
4. Some flower color genetics in the cape primrose, *Streptocarpus nydrida*
5. Some color genetics of the domestic sheep, *Ovis aries*
6. Some color genetics of swine, *Sus scrofa*
7. Some color genetics of the guppy fish, *Poecilia reticulate*
8. Some plumage color genetics of the ringneck dove, *Streptopelia risoria*
9. Some color genetics of the muscovy duck, *Cairina moschata*
10. Some color genetics of the muscovy duck, *Cairina moschata* (second)
11. Some Eye-color genetics in the pomance fly (vinegar fly), *Drosophila melanogaster*
12. Some color inheritance in llamas, *Lama glama*
13. More color inheritance in llamas, *Lama glama* (second)
14. Lama images
15. Some inherited patterns of pigmentation in llamas, *Lama glama*
16. Some eye color genetics of the screwworm fly, *Cochliomyia hominivorax*
17. Homework II, 23 October 1991

Some color-Genetics in cats, Felis domesticus; 2n=38; Standard type = Tabby

Identify the mutant genes appropritely, and fill in the missing phenotypes, genotypes and frequencies. Use phenotypic "shorthand" in the last families.

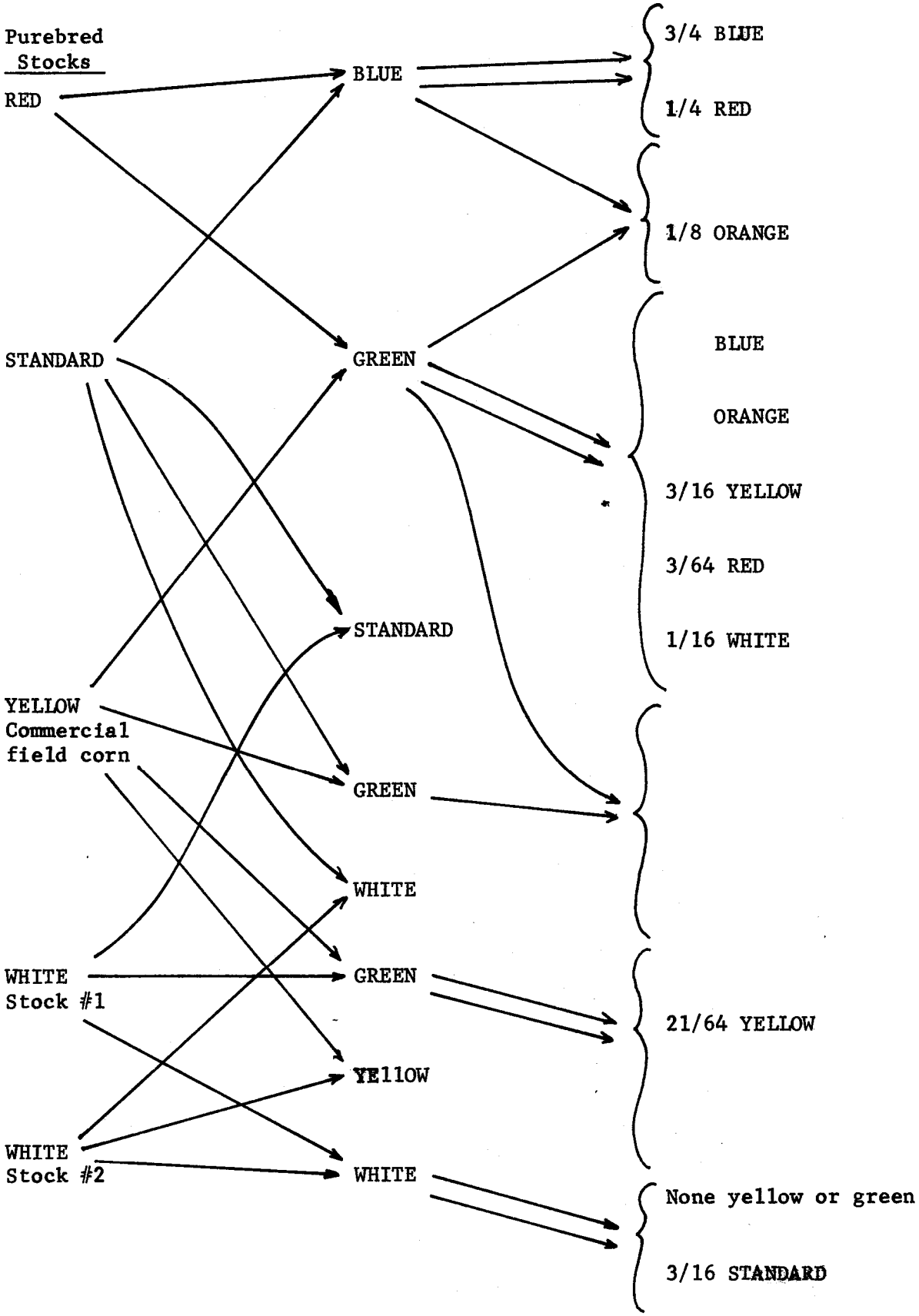


SOME COMMON ENDOSPERM COLORS IN CORN SEEDS, Zea mays. (2n = 20)

Standard type = blue (bluish-purplish)

(Pigmentation can vary in distribution and intensity. Note: green is not chlorophyll.)

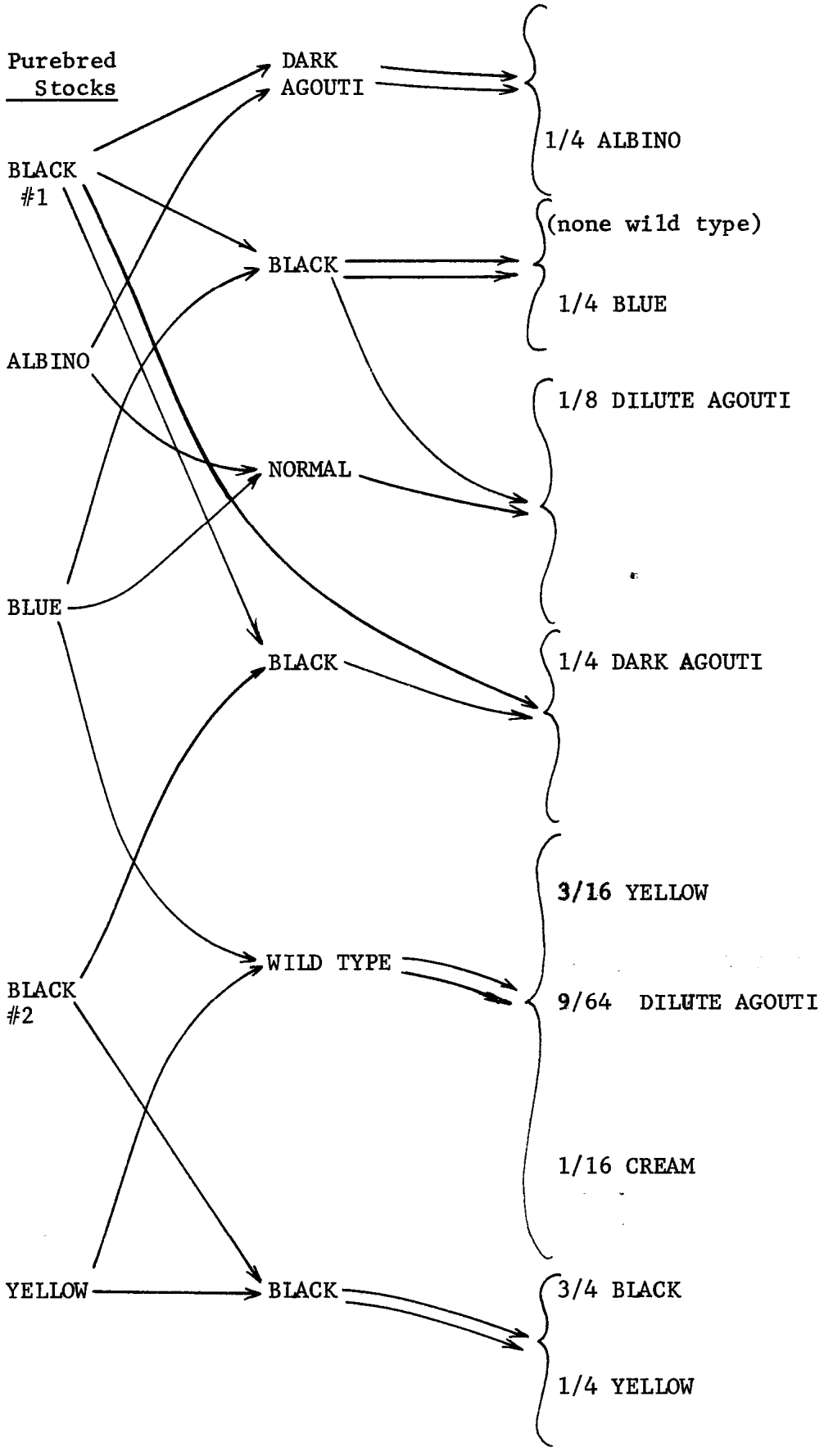
Identify the mutant genes appropriately, and fill in the missing genotypes, phenotypes, and frequencies.



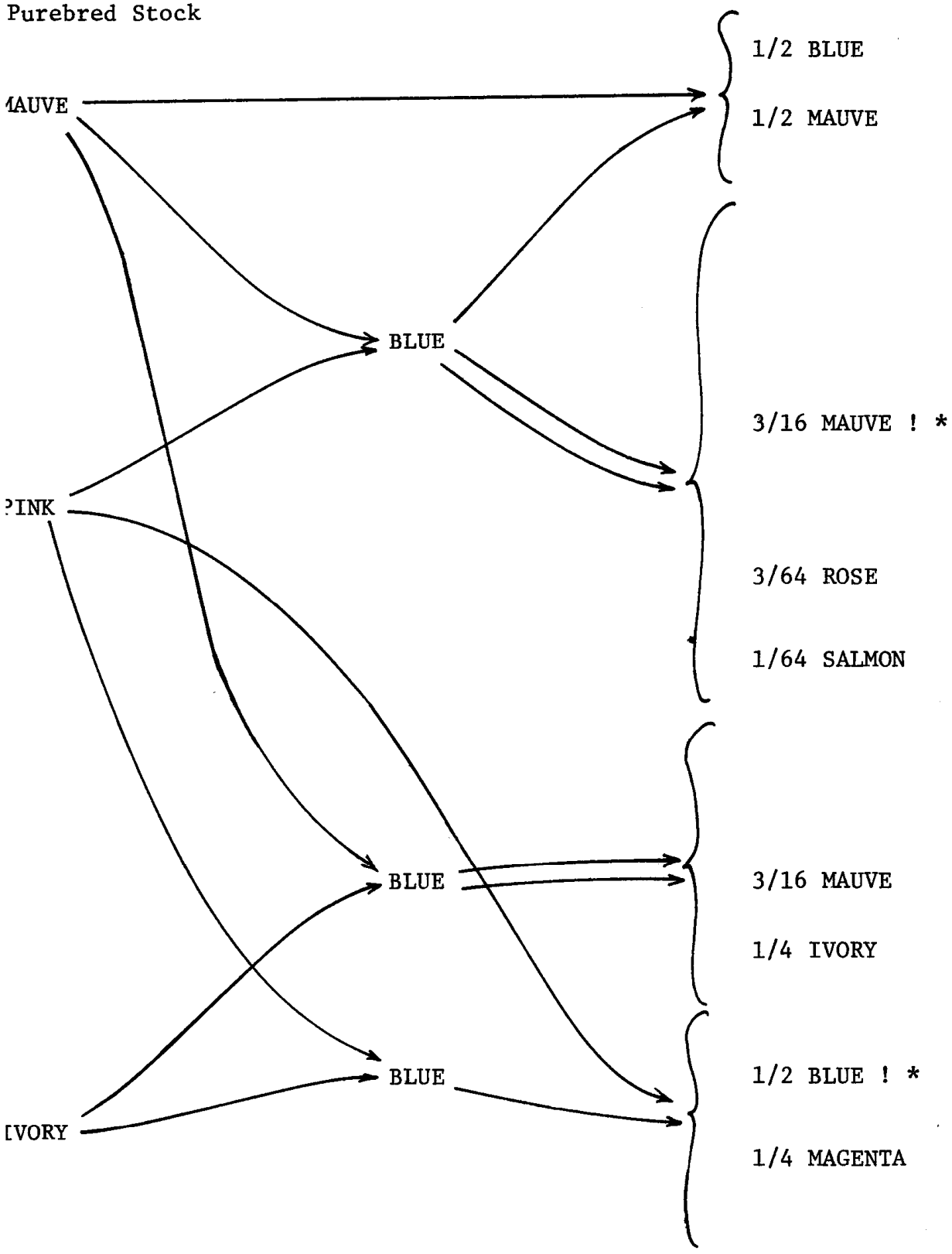
Some Color Genetics of the "Roof" Rat, Rattus rattus, 2n = 42

Normal type = (grey-belly) Dark Agouti

Identify the mutant genes; fill in the missing genotypes, phenotypes and frequencies.

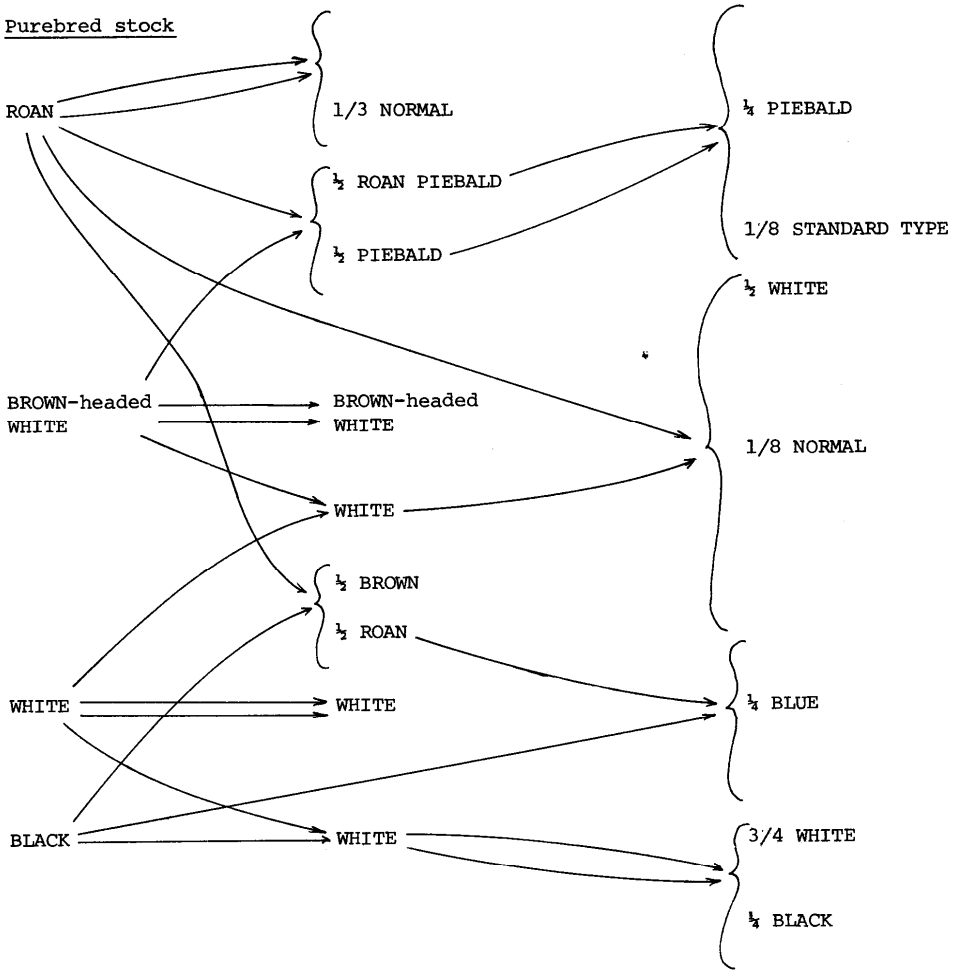


Some flower color genetics in the Cape Primrose, Streptocarpus hybrida. Standard type = blue. Identify the mutant genes, and fill in the missing phenotypes, genotypes, and frequencies.

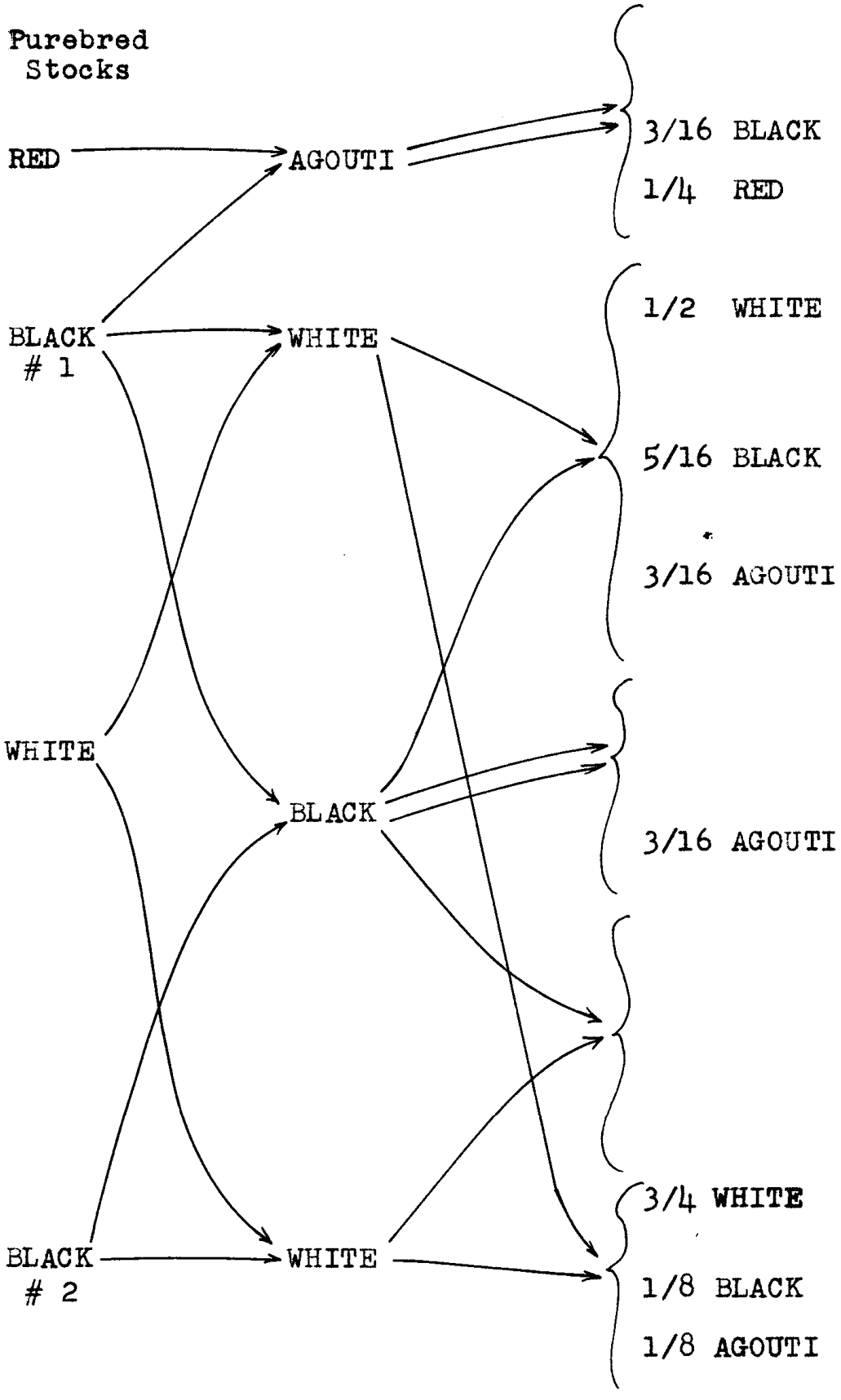


! * Only clue to a "peculiar" or rare genetic situation.

SOME COLOR GENETICS OF THE DOMESTIC SHEEP, Ovis aries, 2n = 54.
Identify the mutant genes, fill in the missing genotypes, phenotypes and frequencies.
The ancestry is uncertain, but sheep are probably a mixture of the Urial, O. orientalis, the Mouflon, O. musimon, and the Argali, O. ammon. The standard type is dark reddish brown. (When not otherwise stipulated, the colored spots are the standard type brown.)



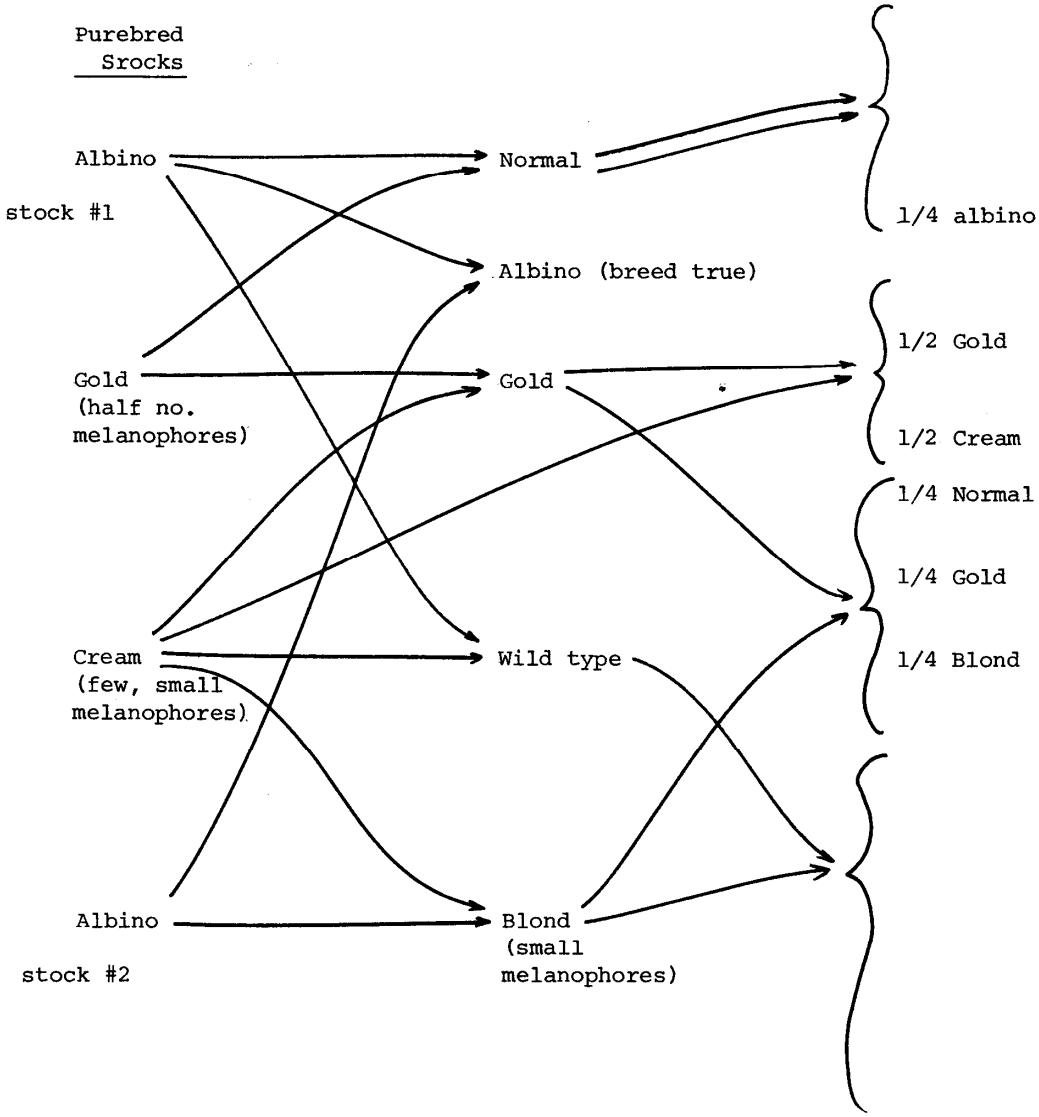
Some color genetics of swine, Sus scrofa; 2n = 38. The wild type is agouti from the wild boar. The bearded pig of S.E. Asia, Sus vittatus, also very likely contributed to domestic swine. Identify the mutant genes, and fill in the missing phenotypes, genotypes and frequencies. Note that complications of spotting are not included in this analysis.



SOME COLOR GENETICS OF THE GUPPY FISH, Poecilia reticulata. 2n = 46.

Wild type = gray-green

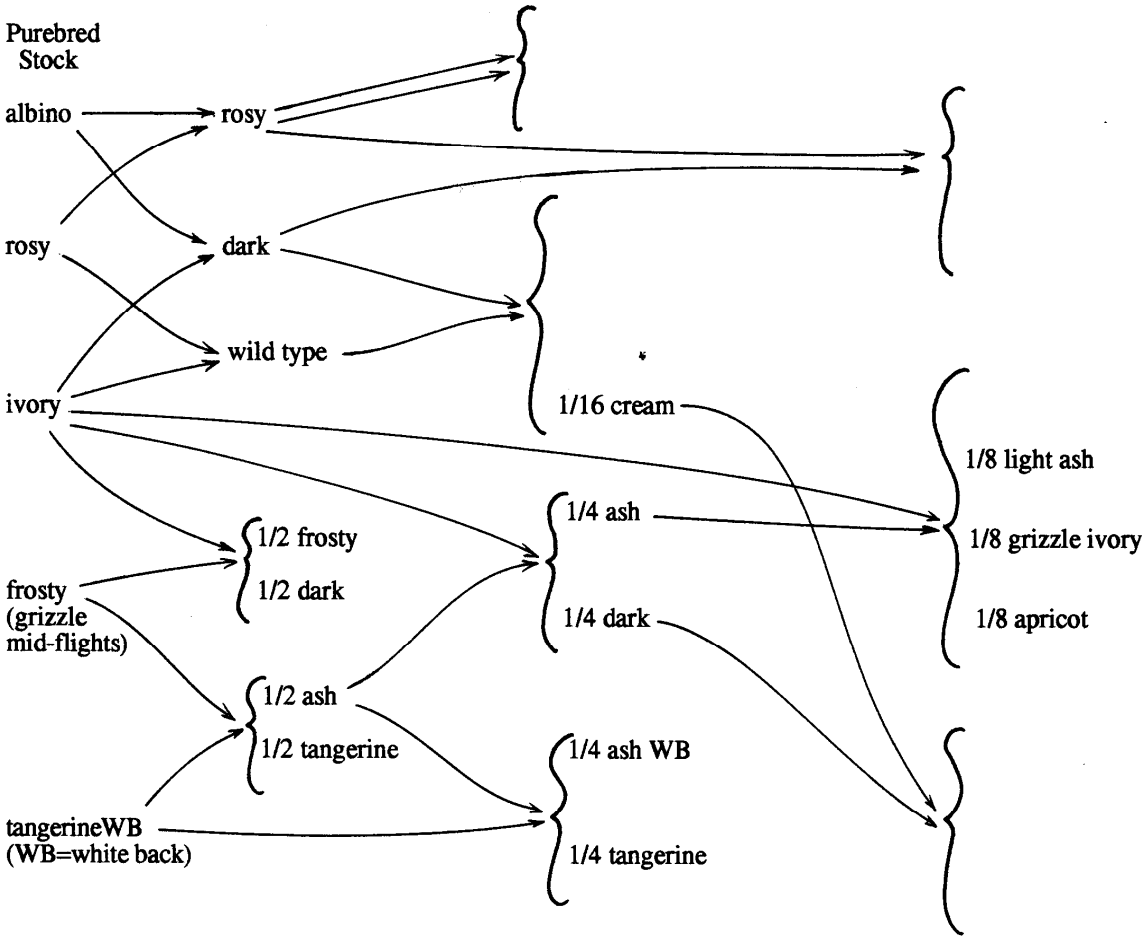
Identify the mutant genes appropriately, and fill in the missing genotypes, phenotypes, and frequencies.



SOME PLUMAGE COLOR GENETICS OF THE RINGNECK DOVE, *Streptopelia risoria* ; 2n = 76

WildType = dark

Identify the mutant genes, and fill in the missing phenotypes , genotypes and frequencies. (The phenotypic shorthand symbolization may be used where appropriate, as in the last families.)



SOME COLOR GENETICS OF THE MUSCOVY DUCK, *Cairina moschata*, 2n = 78

(Shoffner, '73)

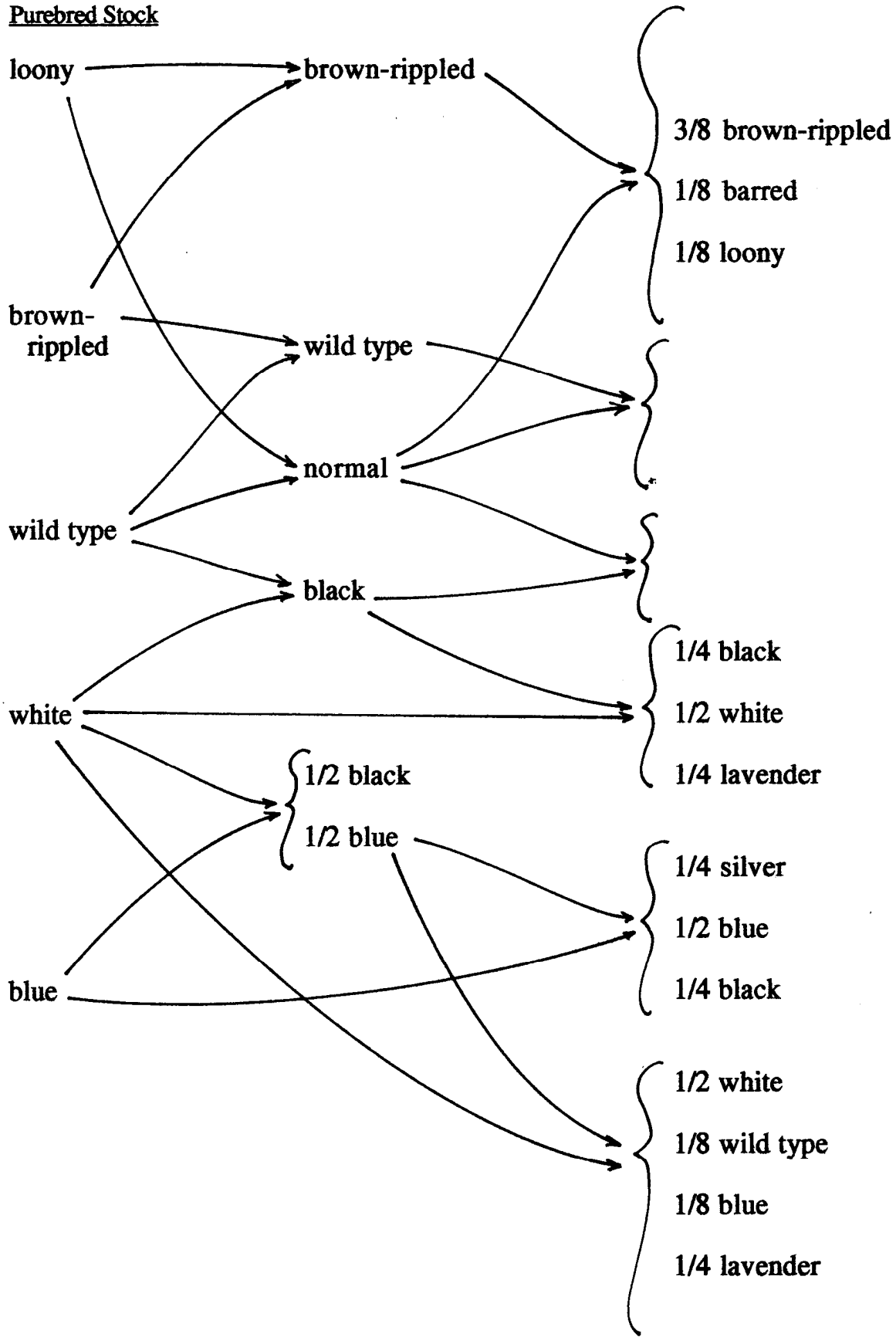
2n = 80

(Ramirez, '76)

Adult wild type = black (with white wing speculum)

Identify the mutant genes, fill in the missing phenotypes, genotypes and frequencies. Use the "shorthand" method of symbolic phenotypic designation in the last families where appropriate (i.e. A^+ __).

<u>Purebred Stock</u>

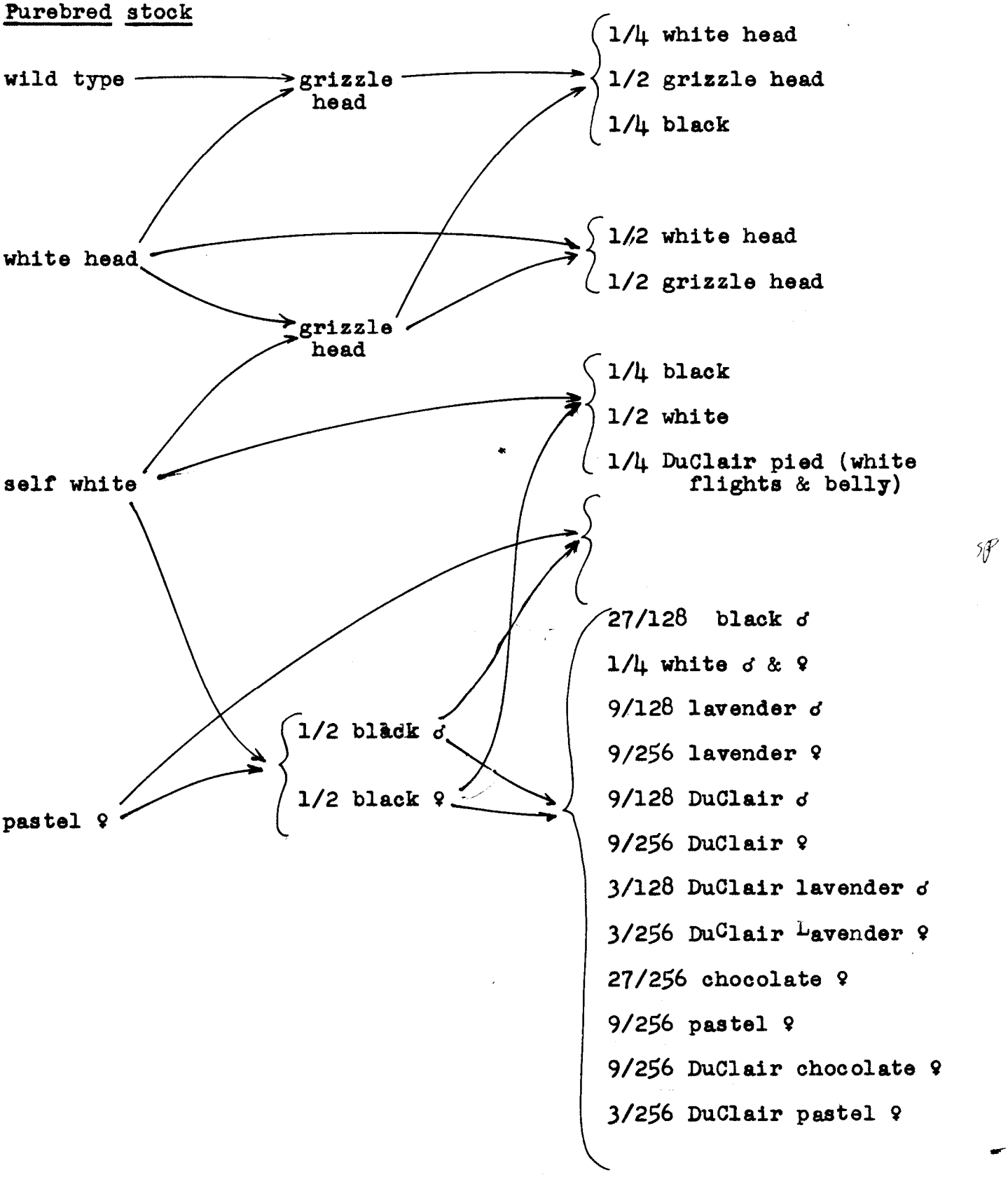


SOME COLOR GENETICS OF THE MUSCOVY DUCK, Cairina moschata, 2n= 78 (Shoffner '73) 2n= 80 (Ramirez '76)

Wild type = black (with white wing speculum)

Fill in the missing phenotypes, genotypes and frequencies.

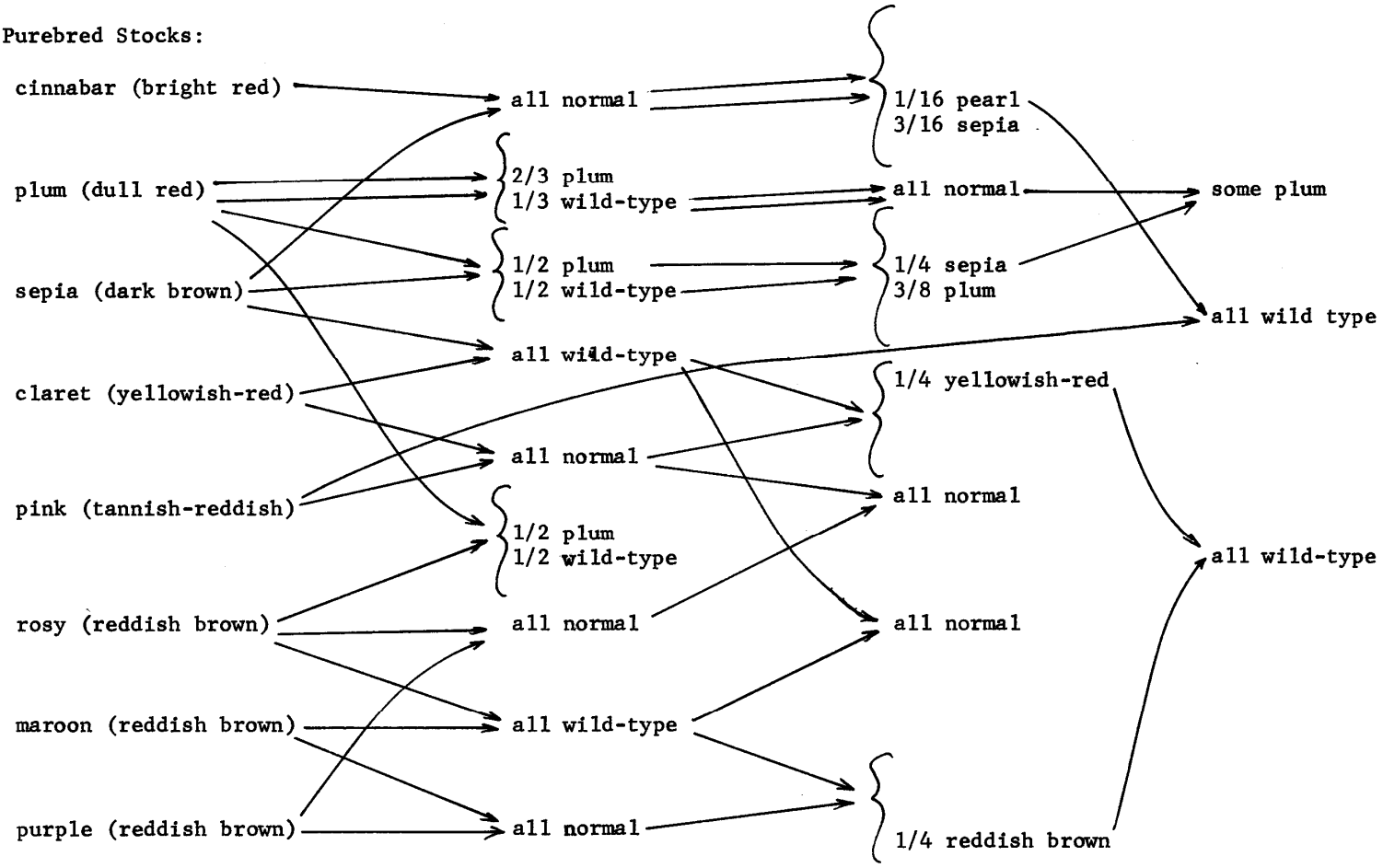
Purebred stock



Some Eye-color Genetics in the Pomace Fly (Vinegar fly)
(Drosophila melanogaster; n = 4)

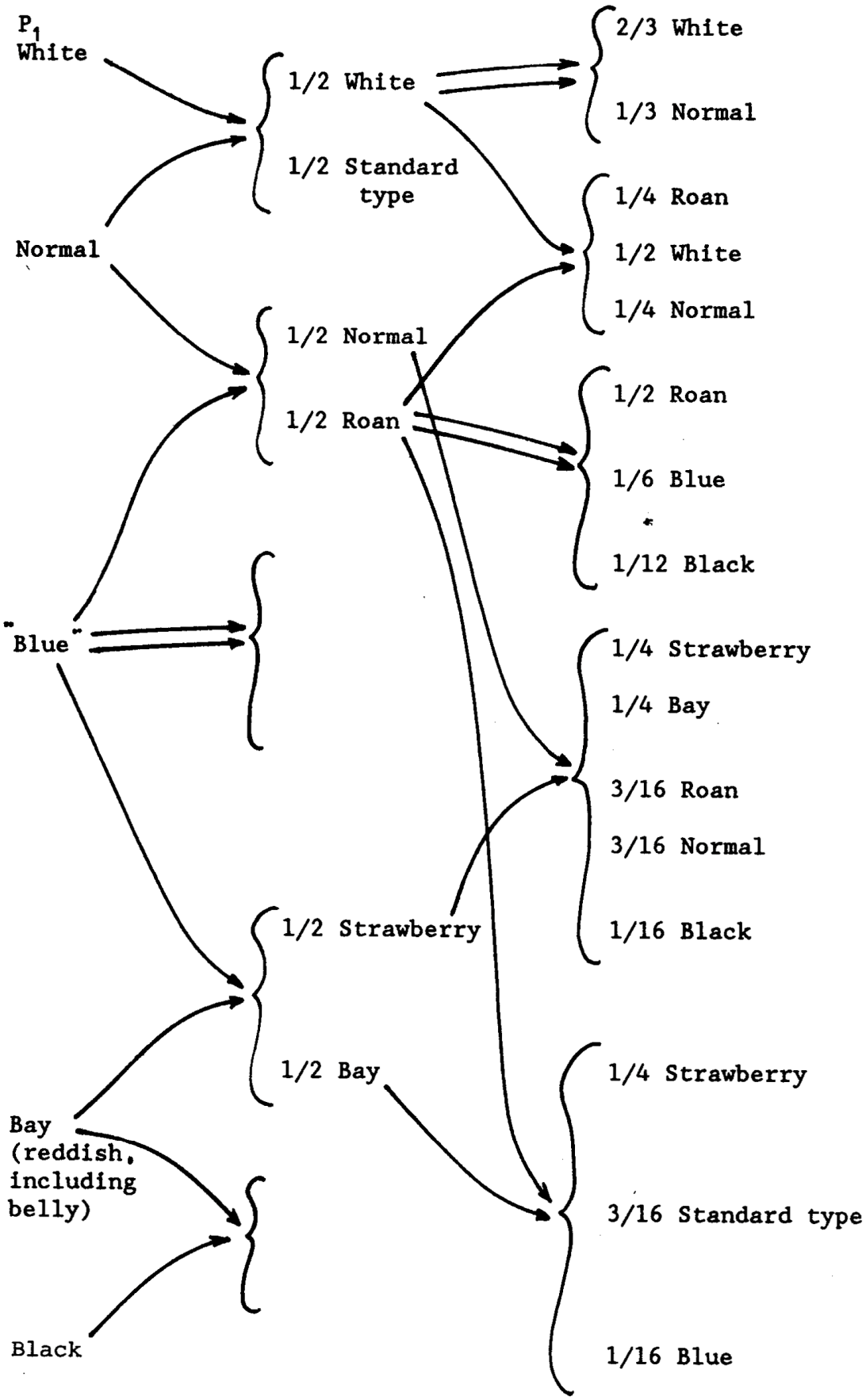
Wild type = Normal = "brick red with dark center" = 2 types of pterin pigments (soluble scarlet and granular brown). Identify the mutant genes, and fill in the missing phenotypes, genotypes and frequencies.

Purebred Stocks:



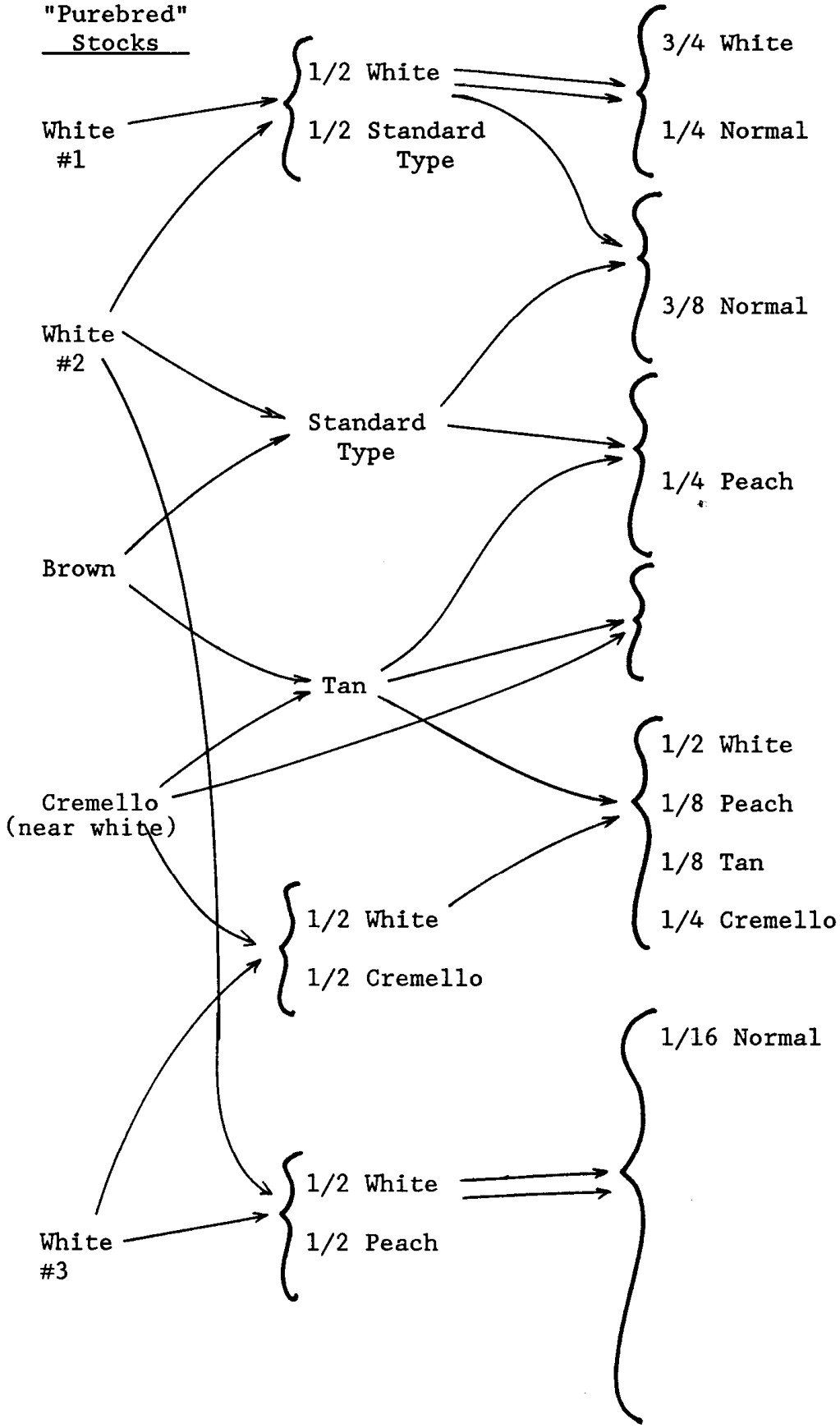
SOME COLOR INHERITANCE IN LLAMAS, Lama glama.

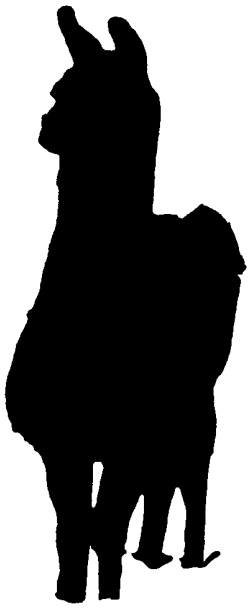
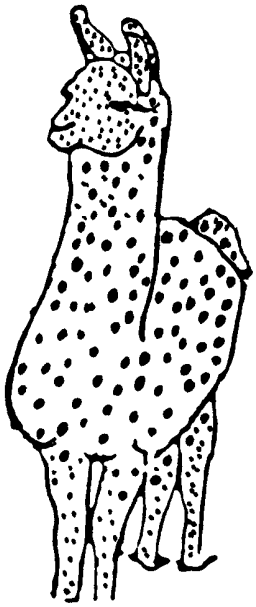
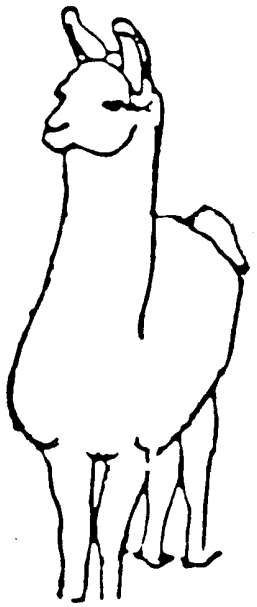
Standard type = (Guanaco) = reddish brown; black on face and legs, whitish undersides. Identify the mutant genes, and fill in the missing phenotypes, genotypes, and frequencies. Last families need only phenotypic "shorthand" (not necessarily full genotypes).

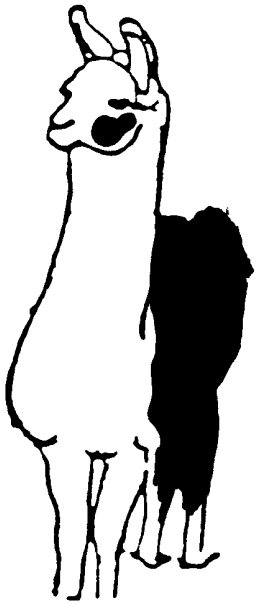
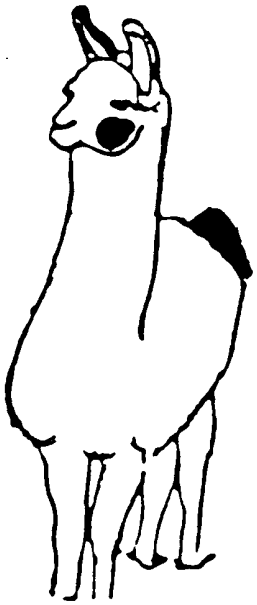
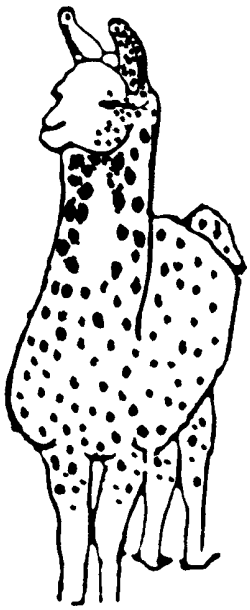
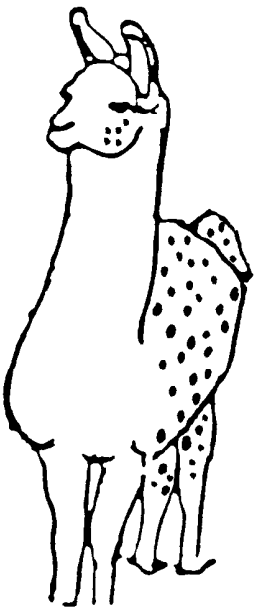
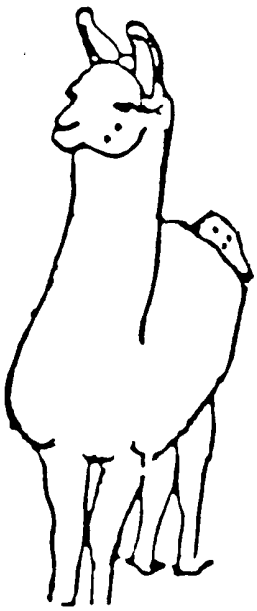


MORE COLOR INHERITANCE IN LLAMAS, Lama glama

Standard type (← Guanaco) - reddish brown; black on face and legs, whitish undersides. Identify the mutant genes, and fill in the missing phenotypes, genotypes, and frequencies. Last families need only phenotypic "shorthand" (not necessarily full genotypes).

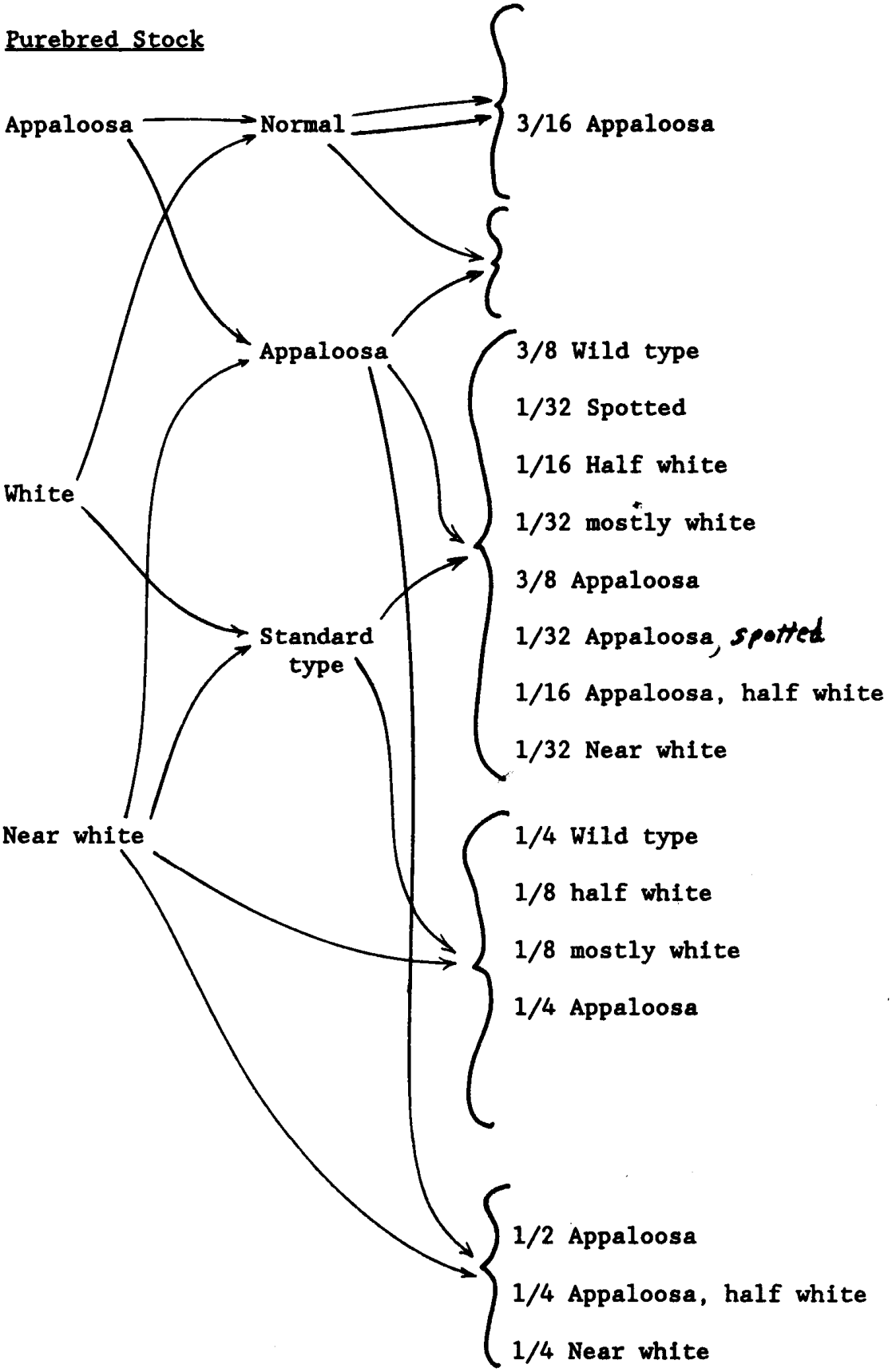


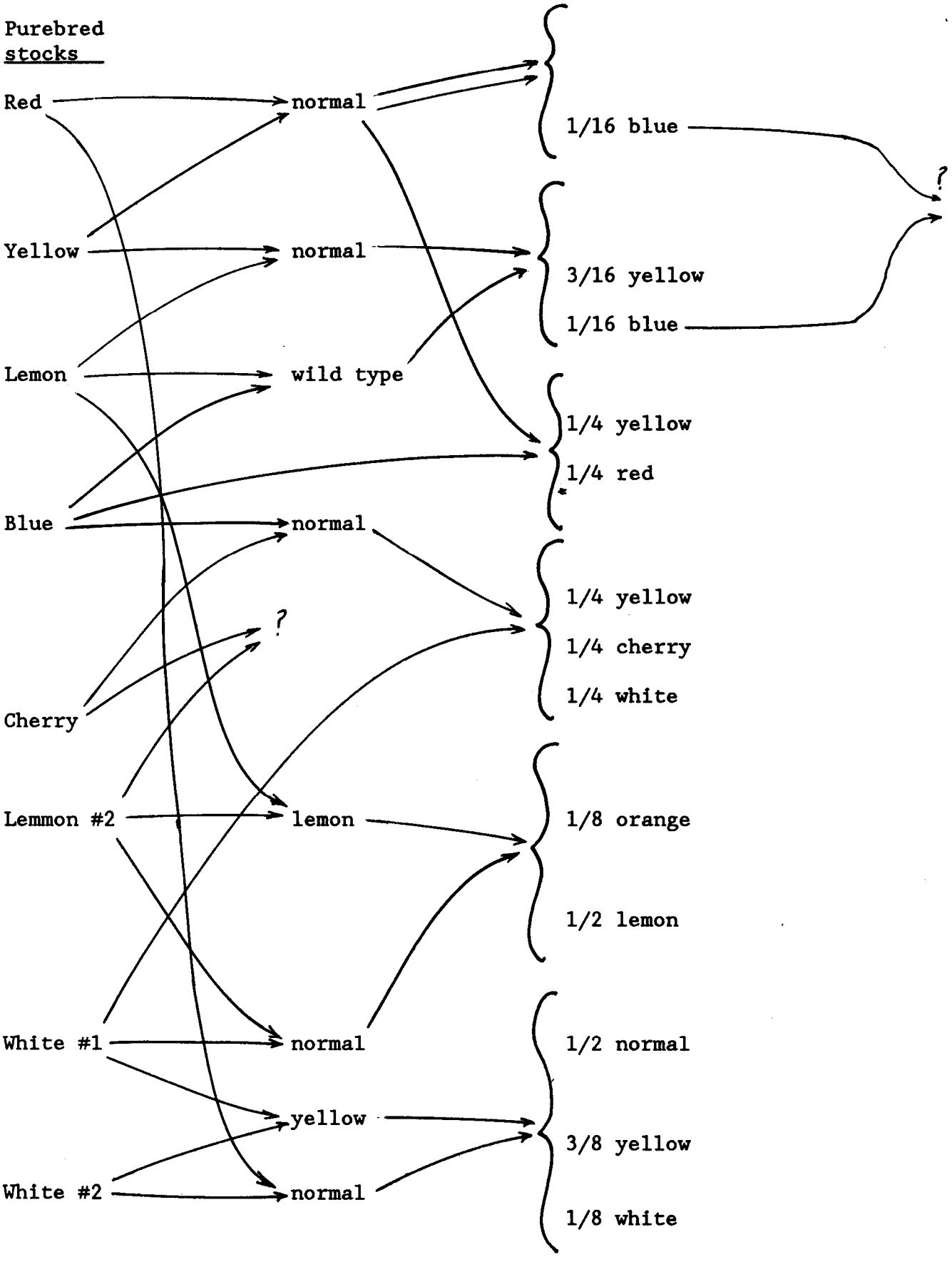
SOME INHERITED PATTERNS OF PIGMENTATION IN LLAMAS, Lama glama.

Standard type = (Guanaco) = reddish brown, black on face and legs (whitish undersides). Identify the mutant genes and fill in the missing phenotypes, genotypes and frequencies. Last families need only phenotypic "shorthand" (not necessarily full genotypes).



MOST DIFFICULT

Some eye color genetics of the screwworm fly, Cochliomyia hominivorax. Wild type is dark reddish brown. 2n = 12. Identify the mutant genes, and fill in the missing phenotypes, genotypes and frequencies. "Shorthand" phenotypic symbolization may be used without full genotyping in the last generation only.



Name_____

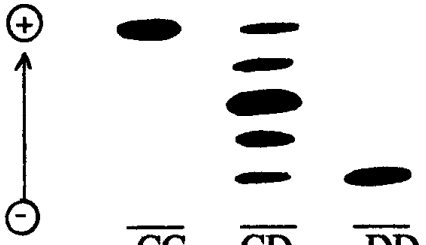
23 Oct 91
30 Oct 91 due

Genetics 320

20 points

Homework II

In face flies, *Musca autumnalis*, from Dairy cattle in Ames, Iowa, the enzyme glyceraldehyde-3-phosphate dehydrogenase (G3pdh) exhibits polymorphism in gel electrophoresis as indicated below. What is the most likely type of inheritance? Test the data by X^2.



	CC	CD	DD
observed	42	159	113

Name _____ Genetics 320 8 July 1992 20 points

HOMEWORK II Due 15 July 1992

A dove breeder went away for 3 years on a special business assignment. He left his doves in charge of a maintenance-caretaker, presumably to breed at random in a big flight cage. He had just introduced several birds with a new color, tangerine. After he returned he counted 67 tangerine doves, 19 tangerine "pearled" ("white back"), and 144 non-tangerine doves. Having had Genetics 320, he thought he could analyze the probable mode of inheritance from this population data and test with X^2. What was his mostly likely hypothesis and test results?