Key

Non – Mendelian Inheritance Practice Problems

- A gardener knows that he can get orange flowers by crossing a redflowered plant (RR) with a yellow-flowered plant (YY).
 - A. What type of genetic inheritance does this show?

incomplete dominance

B. What would be the phenotypic ratios for a cross between a redflowered plant and an orange-flowered plant? Show the Punnett Square.

red: orange

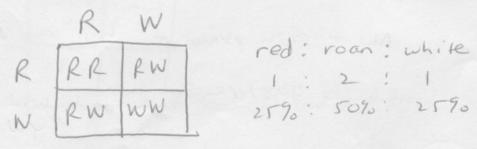
C. What would be the genotypes of the parents if the offspring produced were 25% red-flowered, 50% orange-flowered, and 25% yellow-flowered? Show Punnett Squares.

R RRRY Y RY YY

 The roan horse is an example of codominance. Explain what codominance means in terms of which alleles are expressed in the horses. Describe the phenotype of a roan horse.

Both alleles are expressed at same time phenotype = red hairs & white hairs

A. What will be the phenotypic ratios of a cross between two roan horses? Show the Punnett square.



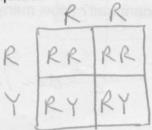
Key

Non – Mendelian Inheritance Practice Problems

- A gardener knows that he can get orange flowers by crossing a redflowered plant (RR) with a yellow-flowered plant (YY).
 - A. What type of genetic inheritance does this show?

incomplete dominance

B. What would be the phenotypic ratios for a cross between a redflowered plant and an orange-flowered plant? Show the Punnett Square.



red: orange

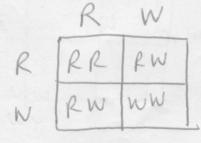
C. What would be the genotypes of the parents if the offspring produced were 25% red-flowered, 50% orange-flowered, and 25% yellow-flowered? Show Punnett Squares.

R RRRY Y RY YY

 The roan horse is an example of codominance. Explain what codominance means in terms of which alleles are expressed in the horses. Describe the phenotype of a roan horse.

Both alleles are expressed at same time phenotype = red hairs & white hairs

A. What will be the phenotypic ratios of a cross between two roan horses? Show the Punnett square.

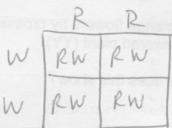


red: roan: white

1: 2: 1

25%: 50%: 25%

B. A horse breeder wants to produce only roan horses because they sell very well. Explain which horses she should always cross to produce the most roan offspring.



RRXWW

3. How many phenotypes are possible when a trait is incompletely dominant? How many for a codominant trait? How many for a dominant/recessive trait?

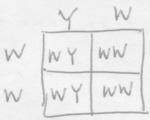
=2 = don/ra.

3 = codominant

4. When yellow guinea pigs (YY) are crossed with white guinea pigs (WW), cream-colored offspring (YW) are produced. What type of inheritance is this?

incomplete dominance

A. Can a pet store owner mate a cream-colored male and a white female to obtain yellow guinea pigs? Explain your answer.



NO- no yellow produced

B. Would a test cross be necessary for guinea pig coat color? Explain.

NO - each phenotype has a specific genotype white = ww cream = yw yellow = yy

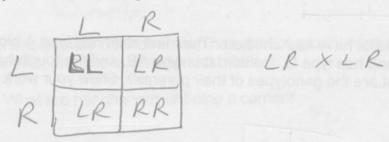
5. In a radish breeding experiment, the results were as follows:

25 long radishes: 52 oval radishes: 26 round radishes

A. What type of inheritance is this?

incomplete dominance

B. Determine the probable genotypes of the parent radishes. Show your work. L = long, R = round

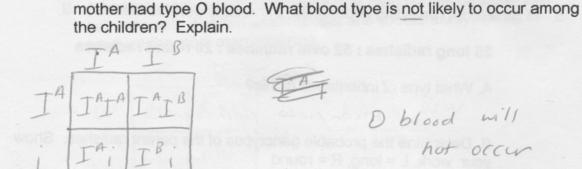


How are traits which have multiple alleles different from traits which do 6. not. Explain using blood types and plant height.

A woman homozygous for type B blood marries a man who is heterozygous for type A. What will be the possible genotypes and phenotypes of their children? Show your work.

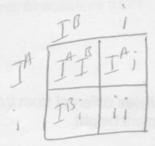
TAIB : IB;

AB blood : O blood



A woman with type AB blood marries a man with type A blood. His

9. A couple have four children. Their first child had type A blood, the second has type O, the third has type AB, and the fourth has type B. What are the genotypes of their parents? Show your work.



8.

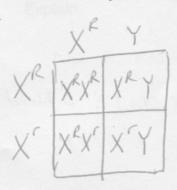
 Explain why men get sex-linked recessive traits more frequently than women.

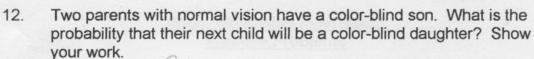
men have I chance to set Normal allele (XY)

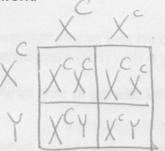
women have 2 Chances to set normal

accele (XX)

11. In fruit flies, red eye color (X^R) is dominant over white eye color (X^r) and the trait is sex-linked. What genotypes and phenotypes will result from a cross between a red-eyed male and a heterozygous red-eyed female? Show your work.







0%

- 13. A phenotypically normal woman has phenotypically normal parents. However, she has a color-blind brother.
 - A. What are her chances of being a carrier?

50%



B. If she is a carrier, does that mean she will definitely have a colorblind son? Explain.

no-50% chance of having a colorblind son

Name:	ond doi two entimetab of volgme are bluone super Period:
er som yeur	Non-Mendelian Genetics Quiz 25 points
Match the type of	inheritance or technique to the descriptions below. Choices
	re than once. (6 pts.)
A. B.	Testcross Codominance
C. D.	Incomplete Dominance Sex- linked
1. When a bla	ack chicken is crossed with a white chicken the offspring are
2. A trait four	nd on the X chromosome.
	n organism with an unknown genotype with an organism that is us recessive for the trait
B 4. In cattle, p	ossible coat colors include red, white, and roan.
D_5. Trait which	shows up mostly in men.
6. In our meio	esis babies hair texture could be straight, curly or kinky.
	Record your answer on the space provided. Draw Punnet sary to help you determine the correct answer. (1 pt. each)
	1 12 What type of inheritance would this ba?
sell the best. Sh	er has green lizards and brown lizards. The green lizards ne knows that brown is dominant to green in lizards. She trid of the brown lizards who cannot produce any green
7. Which of th	ne following could be genotypes for the brown lizards?
A. BB B. Bb	
C. bb	
D. both A	and B

A. Punnett Square	C. codominance				
B. testcross	D. monohybrid cross				
9. What should she cross ea	ach brown lizard with in this technique?				
A. a homozygous brown					
	B. a heterozygous brown lizard C. a green lizard D. a blue lizard				
10. If she performs the cros should	s and the baby lizards are all brown, she				
A. keep the brown lizard	I that was crossed				
B. get rid of the brown li	zard that was crossed				
n roses RR = red RW = nin	k and WW = white for flower color				
n roses, RR = red, RW = pin	k and WW = white for flower color.				
nies, and roam	k and WW = white for flower color. In the dots of the				
11. If a plant breeder wante					
11. If a plant breeder wante crossed 2 flowers, what	d to get the most variety in color each time sh				
11. If a plant breeder wante crossed 2 flowers, what	d to get the most variety in color each time sh				
11. If a plant breeder wante crossed 2 flowers, what	d to get the most variety in color each time sh				
A. RR x RR B. RR x RW	d to get the most variety in color each time sh				
A. RR x RR B. RR x RW C. RW x RW	d to get the most variety in color each time sh parental genotypes would she use?				
A. RR x RR B. RR x RW C. RW x RW D. WW x WW 12. What type of inheritance A. incomplete dominance	ed to get the most variety in color each time sh parental genotypes would she use?				
A. RR x RR B. RR x RW C. RW x RW D. WWW x WW 12. What type of inheritance A. incomplete dominance	d to get the most variety in color each time sh parental genotypes would she use?				
A. RR x RR B. RR x RW C. RW x RW D. WWW x WW 12. What type of inheritance A. incomplete dominance B. codominance C. sex linked trait	d to get the most variety in color each time shaparental genotypes would she use? e would this be?				
A. RR x RR B. RR x RW C. RW x RW D. WWW x WW 12. What type of inheritance A. incomplete dominance	ed to get the most variety in color each time sh parental genotypes would she use?				
A. RR x RR B. RR x RW C. RW x RW D. WW x WW 12. What type of inheritance A. incomplete dominance B. codominance C. sex linked trait D. testcross	d to get the most variety in color each time sh parental genotypes would she use?				
A. RR x RR B. RR x RW C. RW x RW D. WW x WW 12. What type of inheritance A. incomplete dominance B. codominance C. sex linked trait D. testcross A. 1	d to get the most variety in color each time shaparental genotypes would she use? e would this be?				
A. RR x RR B. RR x RW C. RW x RW D. WWW x WW 12. What type of inheritance A. incomplete dominance B. codominance C. sex linked trait D. testcross 13. How many phenotypes A. 1 B. 2	d to get the most variety in color each time she parental genotypes would she use? e would this be? are possible with this type of inheritance?				
A. RR x RR B. RR x RW C. RW x RW D. WW x WW 12. What type of inheritance A. incomplete dominance B. codominance C. sex linked trait D. testcross A. 1	d to get the most variety in color each time she parental genotypes would she use? e would this be? are possible with this type of inheritance?				

<u>B</u> 14.	reason to do a testcross?
	A. yes 3. no
(When a tall radish plant is crossed with a short radish plant, all the offspring were medium height. The medium height plants were then crossed with each other. Out of 100 offspring of the medium height plants, how many would be expected to be tall?
	TT = tall
	SS = short
,	A. 25
- 1	3. 50
	C. 100
	D. 0 AX HX
In hors	
	ses, B stands for black coat color and W stands for white coat color and the coat color trait is codominant.
<u>16.</u>	and the coat color trait is codominant.
<u>16.</u>	What would be the genotype for a heterozygous horse?
<u>16.</u>	What would be the genotype for a heterozygous horse? A. BB
<u>C</u> 16.	What would be the genotype for a heterozygous horse? A. BB B. WW
<u></u>	What would be the genotype for a heterozygous horse? A. BB B. WW C. BW
<u>C</u> 16.	What would be the genotype for a heterozygous horse? A. BB B. WW C. BW D. none of the above
<u>C</u> 16.	A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse?
<u>C</u> 16.	A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white C. grey
<u>C</u> 16.	A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white
<u>C</u> 16. <u>D</u> 17.	A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white C. grey
<u>C</u> 16. <u>D</u> 17.	What would be the genotype for a heterozygous horse? A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white C. grey D. black and white What is the chance a black horse and a black and white horse would produce a white horse?
<u>C</u> 16. <u>D</u> 17.	A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white C. grey D. black and white What is the chance a black horse and a black and white horse would
<u>C</u> 16. <u>D</u> 17.	What would be the genotype for a heterozygous horse? A. BB B. WW C. BW D. none of the above What would be the phenotype for a heterozygous horse? A. black B. white C. grey D. black and white What is the chance a black horse and a black and white horse would produce a white horse? A. 0%

hemo him t	ophilia. Her doo hat only her fat	ctor asks her ab her has hemoph	is afraid of having out her family hist nilia in her family a = normal, X ^h = hen	ory and she tells nd her husband	
B_19. V	Vhat is Michelle's	s genotype?			
A	X ^H X ^H	B. X ^H X ^h	C. Xh Xh	D X ^H Y	
A 20. V	Vhat is her husba	and's genotype?			
	A X ^H Y B X ^h Y C X ^H Y ^h D X ^H X ^h				
<u>B</u> 21.	What are the c		nelle and her husbar	nd will have a child	
	A. 0% B. 25% C. 50% D. 100%		X X X X Y X Y Y	X"X" X"Y	
<u>A</u> 22.	Will the child with hemophilia be a boy or a girl?				
	A. boy B. girl				
<u>B</u> 23.		chances Michelle n the allele for he	and her husband w mophilia?	ill have a girl who	
	A. 0% B. 25% C. 50% D. 100%		emile		
<u>B</u> 24.	Sex linked tra	its are carried on	··· Sector s		
	A. the Y chror B. the X chror C. the Z chror D. both A and	nosome nosome			
<u>B</u> 25.	T or F: Female A. true	_	a sex linked trait or 63. false	disease.	