

Key

Blood Type Problems

1. List all the possible genotypes for each of the 4 blood types:

Type O $I^O I^O$ Type A $I^A I^A$ $I^A I^O$
 Type B $I^B I^B$ or $I^B I^O$ Type AB $I^A I^B$

SHOW WORK!

2. A man with AB blood is married to a woman with AB blood. What blood types will their children be and in what proportion?

| | | | |
|---|----|----|--------------------------|
| | A | B | |
| A | AA | AB | 50% will be type AB |
| B | AB | BB | 25% type A 25% type B |

3. A man who has type B blood (genotype: BB) is married to a woman with type O blood. What blood type will their children have?

| | | | |
|---|----|----|--------------------------|
| | O | O | |
| B | BO | BO | All type B ($I^B I^O$) |
| B | BO | BO | |

4. A woman with type A blood (genotype: AO) is married to a type B person (genotype: BO). What blood types will their children have?

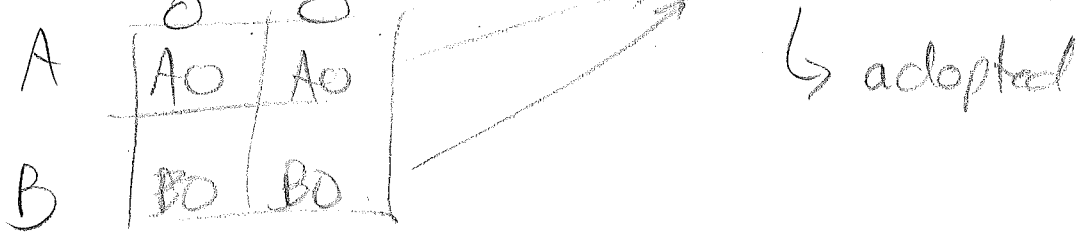
| | | | |
|---|----|----|--|
| | B | O | |
| A | AB | AO | 25% will be type AB |
| O | BO | OO | 25% type A 25% type B 25% type O |

5. A woman with type A blood is claiming that a man with type AB blood is the father of her child, who is also type AB. Could this man be the father? Show the possible crosses; remember the woman can have AO or AA genotypes.

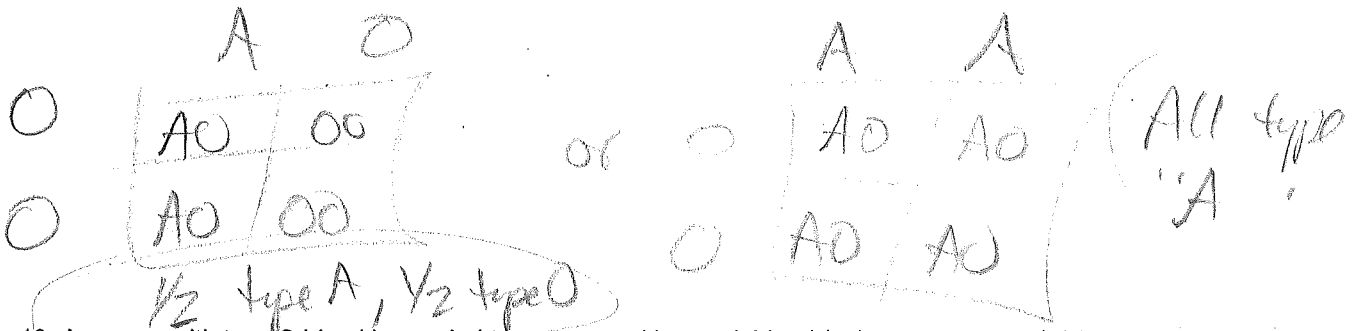
| | | | |
|-----|-----|----|----|
| | Dad | | |
| | A | B | |
| Mom | A | AA | AB |
| | O | AO | BO |

| | | | |
|---|----|----|-------------------------------------|
| | A | B | |
| A | AA | AB | Either way, he could be the father. |
| A | AA | AB | |

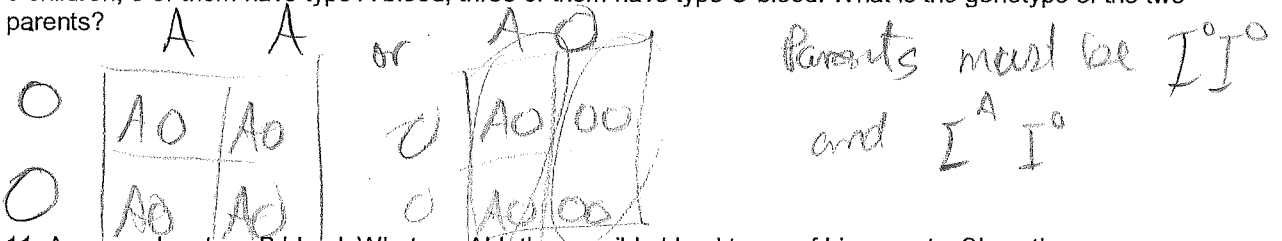
6. A man with type AB blood is married to a woman with type O blood. They have two natural children, and one adopted child. The children's blood types are: A, B, and O. Which child was adopted?



7. A person with type A blood (unknown genotype) marries a person with type O blood. What blood types are possible among their children. (Show 2 crosses)



10. A person with type O blood is married to a person with type A blood (unknown genotype). They have 6 children; 3 of them have type A blood, three of them have type O blood. What is the genotype of the two parents?



11. A person has type B blood. What are ALL the possible blood types of his parents. Show the crosses to prove your answer.



12. A man of unknown genotype has type B blood, his wife has type A blood (also unknown genotype). List ALL the blood types possible for their children. (you may need to do multiple crosses to consider the different possible genotypes of the parents)



13. Two people with type O blood have three children. How many of those three children also have type O blood?

All of them.

14. Why is a person with type O blood called a "universal donor"?

15. Why is a person with type AB blood called a "universal acceptor"?

