Name KEY

Blood types: CoDominance Practice

Human blood types are determined by genes that follow the CODOMINANCE pattern of inheritance. There are two dominant alleles (A and B) and one recessive allele (o).

Blood Type (Phenotype)	Genotype	Can donate blood to:	Can receive blood from:
O	oo	A,B,AB and O (universal donor)	O
AB	AB	O, AB	A,B,AB and O (universal receiver)
A	AA or Ao	AB, A	O,A
B	BB or Bo	AB,B	O,B

1. Write the genotype for each person based on the description:

   a. Homozygous for the "B" allele — BB
   b. Heterozygous for the "A" allele — Ao
   c. Type O — oo
   d. Type "A" and had a type "O" parent — Ao
   e. Type "AB" — AB
   f. Blood can be donated to anybody — oo
   g. Can only get blood from a type "O" donor — oo

2. Pretend that Ryan Reynolds is homozygous (BB) for the type B allele, and Blake Lively is type "O" (oo).
   What are all the possible blood types of their baby? - Type B (genotype Bo)

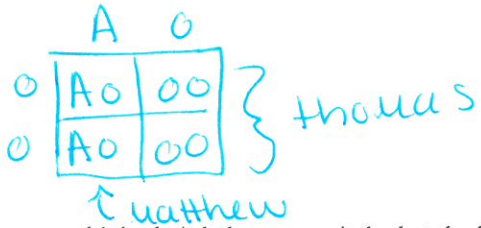
	O	O
B	Bo	Bo
B	Bo	Bo

3. Draw a Punnett square showing all the possible blood types for the offspring produced by a type "O" mother (oo) and an a Type "AB" father (AB)

	A	B
O	Ao	Bo
O	Ao	Bo

4. Mrs. Page is type "A" and Mr. Page is type "O." They have three children named Matthew, Thomas, and Luke. Thomas is type "O," Matthew is type "A," and Luke is type "AB." Based on this information:

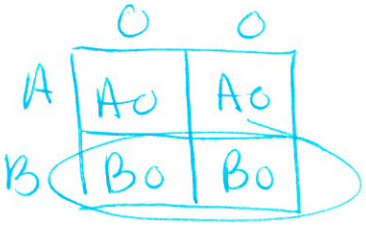
   a. Mr. Page must have the genotype OO
   b. Mrs. Page must have the genotype AO because thomas has blood type O
   c. Luke cannot be the child of these parents because neither parent has the allele B.



no possibility of a B allele being passed down.

5. Two parents think their baby was switched at the hospital. Its 1968, so DNA fingerprinting technology does not exist yet. The mother has blood type "O," the father has blood type "AB," and the baby has blood type "B."

   a. Mother's genotype: OO
   b. Father's genotype: AB
   c. Baby's genotype: BB or BO
   d. Punnett square showing all possible genotypes for children produced by this couple



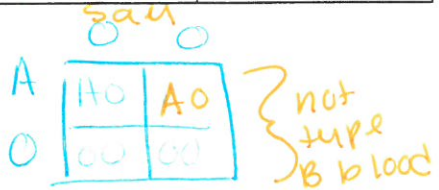
baby could be there child

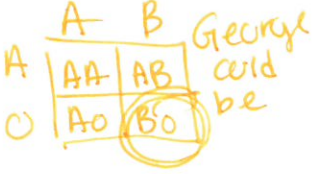
   e. Was the baby switched? Possibly, while the blood type matches you would need further testing to confirm paternity.

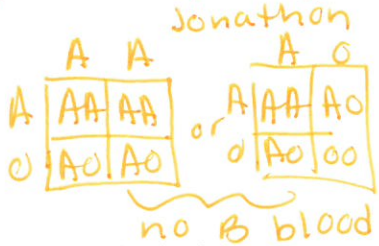
6. Based on the information in this table, which man **could not** be the father of the baby? Justify your answer with a Punnett square.

Name	Blood Type
Mother	Type A
Baby	Type B
Sam	Type O
George	Type AB
Jonathon	Type A
Brad	Type B

- AO
- BO
- OO X → no "B" allele/could not be the Father
- AB
- AA/AO X → no "B" allele/could not be the father
- BB/BO







7. Explain why blood type data cannot prove who the father of a baby <u>is</u>, and can only prove who the father <u>is not</u>.

Blood types are two common to definitively prove paternity, you would need additional DNA testing.