

Name: _____

Period: _____ Date: _____

Blood Typing Problems and The Case of the Long Lost Son

Part 1

1. What blood type would a person with the genotype AB have? _____
2. What blood type would a person with the genotype Ai have? _____
3. What blood type would a person with the genotype BB have? _____
4. What blood type would a person with the genotype ii have? _____
5. What blood type would a person with the genotype Bi have? _____
6. A man with type AB blood is married to a woman also with type AB blood. **What blood types will their children have? What is the phenotypic ratio?**

7. A man has type B blood (genotype Bi) is married to a woman with type O blood. **What blood types will their children have? What will be the genotypes of the children?**

8. A woman with type A blood (genotype Ai) is married to a type B person (genotype Bi). **What proportion of their children will have: A blood? B blood? O blood?**

9. 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 of the child? Show the possible crosses; remember that the woman can have AA or Ai genotypes.**

10. A woman with type O blood is claiming that a man with type AB blood is the father of her child who is type O. **Could this man be the father of the child? Show the cross.**

Part 2: The Long Lost Son:

Mr. Howell died and left all his money to his two children. A young man claiming to be a lost third child sued for his share of the estate. The judge ordered blood tests for all family members and for the young man.

Mr. Howell's blood type was already on record. He had type AB blood. His wife had type A, and the young man who claimed to be the long lost son had type O blood. The judge quickly dismissed the case.



1. What are the possible genotype(s) of the young man claiming to be Mr. Howell's long lost son?

2. Create a Punnett square and find the offspring that can be produced if Mrs. Howell had the genotype AA and Mr. Howell had the genotype AB.

- a. What are the possible phenotypes of the offspring?

- b. What is the phenotypic ratio? _____
- c. Does this outcome support or refute the judge's decision?

3. Create a Punnett square and find the offspring that can be produced if Mrs. Howell had the genotype Ai and Mr. Howell had the genotype AB.

- a. What are the possible phenotypes of the offspring?

- b. What is the phenotypic ratio? _____
- c. Does this outcome support or refute the judge's decision?

- A. Based on the Punnett squares you created, list all the possible blood types that Mr. Howell's offspring could have:

- B. Do you agree or disagree with the judge's decision? Explain. _____
