

Name _____

Date _____

Biology worksheet: ABO Genetics Problem 2

The chart below shows the inheritance of human blood types. There are four different phenotypes possible: A, B, AB and O. The alleles A and B are **codominant**, and the allele O is recessive to both A and B.

Blood Groups				
Phenotype (Blood Type)	Genotype	Antigen on Red Blood Cell	Safe Transfusions	
			To	From
A	$I^A I^A$ or $I^A i$	A	A, AB	A, O
B	$I^B I^B$ or $I^B i$	B	B, AB	B, O
AB	$I^A I^B$	A and B	AB	A, B, AB, O
O	ii	none	A, B, AB, O	O

Show all solutions in the space provided.

1. A person with **I^AI^B** is crossed with **I^AI^A**. What are the genotypic and phenotypic ratios of the offspring?

Genotypes	Phenotypes

2. A person with type **AB** blood is crossed with a person with type **O** blood. What are the genotypic and phenotypic ratios of the offspring?

Genotypes	Phenotypes

3. A person with type **A** blood is crossed with a person with type **B** blood. They have an offspring with type **O** blood. What are the genotypes of the parents? Use the Punnett square to support your answer.

4. A person with type **AB** blood is crossed with another individual. They have 20 children and all of them have either type **A** blood or type **B** blood. What is the genotype of the other parent? Use the Punnett square to support your answer.

5. In blood drives, there are certain blood types that are more sought after than others. What blood type can be used in more transfusions than the others? Which can be used least often?