Scholars Biology / Biology

Name _____

Genetics: Multiple Allele Traits – Blood Types

Blood Type is controlled by 3 alleles: A, B, O. A & B are codominant, O is recessive.

1. a) What are the two genotypes possible for a person who as A blood? _____
   b) What genotype does a person with AB blood have? _____
   c) What genotype does a person with O blood have? _____
   d) What are the two genotypes possible for a person who as B blood? _____

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

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

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

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 of the child? _____ Show the possible crosses; remember that the woman can have AA or AO genotypes.

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. Jane has type A blood, Bobby has type B blood, and Grace has type O blood. Which child was adopted?

_____

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Name ANS KEY

Genetics: Multiple Allele Traits

Blood Type is controlled by 3 alleles: A, B, O. A & B are codominant, O is recessive.

1. a) What are the two genotypes possible for a person who as A blood? AA, AO
   b) What genotype does a person with AB blood have? AB
   c) What genotype does a person with O blood have? OO
   d) What are the two genotypes possible for a person who as B blood? BB, BO

2. A man with type AB blood is married to a woman also with type AB blood. What blood types will their children have and in what proportion?
   AB x AB | ANS: A, B, AB

	A	B
A	AA	AB
B	AB	BB

3. A man has type B blood (genotype BB) is married to a woman with type O blood. What blood type will all their children have? B What is the genotype of the children? BO
   BB x OO

	B	B
O	BO	BO
O	BO	BO

4. A woman with type A blood (genotype AO) is married to a type B person (genotype BO). What proportion of their children will have: A blood? 25% B blood? 25% O blood 25% AB 25%
   AO x BO

	A	O
B	AB	BO
O	AO	OO

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 of the child? YES Show the possible crosses; remember that the woman can have AA or AO genotypes.
   ♀ A O→ AB ☺ AB | AA x AB AO x AB

	A	B
A	AA	AB
A	AA	AB

	A	B
A	AA	AB
O	AO	BO

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. Jane has type A blood, Bobby has type B blood, and Grace has type O blood. Which child was adopted?
   GRACE

O→ AB Jane A
♀ O Bobby B
Grace O

AB x OO

	A	B
O	AO	BO
O	AO	BO