Pedigree Practice Worksheet Answer Key PDF

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Part 1: Building a Foundation

Which symbol is typically used to represent a male in a pedigree chart?

undefined. A) Circle

undefined. B) Square ✓

undefined. C) Triangle

undefined. D) Diamond

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Which of the following statements are true about shaded symbols in a pedigree chart? (Select all that apply)

undefined. A) They represent individuals who express the trait. ✓

undefined. B) They indicate carriers of a trait.

undefined. C) They represent unaffected individuals.

undefined. D) They show individuals with unknown genotype.

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Describe the difference between autosomal dominant and autosomal recessiv inheritance patterns.

Autosomal dominant traits require only one copy of the allele to be expressed, while autosomal recessiv traits require two copies.

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Part 2: Comprehension and Application

In a pedigree chart, if a trait is seen in every generation, what is the most likely mode of inheritance?

undefined. A) Autosomal Recessiv
undefined. B) Autosomal Dominant ✓
undefined. C) X-linked Recessiv
undefined. D) Y-linked

The most likely mode of inheritance is autosomal dominant.

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Which of the following are characteristics of a carrier in a recessiv trait pedigree? (Select all that apply)

undefined. A) They express the trait.
undefined. B) They have one dominant and one recessiv allele. ✓
undefined. C) They can pass the trait to offspring. ✓

undefined. D) They are always male.

Carriers have one dominant and one recessiv allele and can pass the trait to their offspring.

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Explain what is meant by a heterozygous genotype and provide an example using allele notation.

A heterozygous genotype has two different alleles for a trait, such as Aa.

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If a father is affected by an X-linked recessiv trait, what is the probability that his son will also be affected?

undefined. A) 0% ✓

undefined. B) 25%

undefined. C) 50%

undefined. D) 100%

The probability is 0% because sons inherit their X chromosome from their mother.

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The probability is 0% because sons inherit the Y chromosome from their father.

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In an autosomal dominant pedigree, if one parent is heterozygous for the trait and the other is unaffected, what are the possible genotypes of their children? (Select all that apply)

undefined. A) Homozygous dominant ✓

undefined. B) Heterozygous ✓

undefined. C) Homozygous recessiv

undefined. D) Carrier

The possible genotypes are heterozygous and homozygous dominant.

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Possible genotypes include heterozygous and homozygous dominant.

Part 3: Analysis, Evaluation, and Creation

A pedigree shows a trait that affects only males and is passed from father to son. What is the most likely mode of inheritance?

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undefined. B) Autosomal Recessiv

undefined. C) X-linked Recessiv

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In a pedigree chart, if a trait skips a generation, which inheritance patterns could it possibly indicate? (Select all that apply)

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undefined. B) Autosomal Recessiv ✓
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It could indicate autosomal recessiv or X-linked recessiv inheritance patterns.

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Skipped generations could indicate autosomal recessiv or X-linked recessiv inheritance.

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undefined. A) Autosomal Dominant
undefined. B) Autosomal Recessiv ✓
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Traits that skip generations may indicate autosomal recessiv or X-linked recessiv inheritance.

Analyze a given pedigree chart (provide a sample chart) and determine the mode of inheritance. Justify your answer with evidence from the chart.

Analyze the chart for patterns that indicate the mode of inheritance.

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Analyze the chart to identify the mode of inheritance based on the patterns observed.

Analyze a given pedigree chart (provide a sample chart) and determine the mode of inheritance. Justify your answer with evidence from the chart.

Analyze the chart for patterns that indicate the mode of inheritance.

Given a pedigree where a mother is affected by an X-linked dominant trait, what is the probability that her daughter will also be affected?

undefined. A) 0%

undefined. B) 25%

undefined. C) 50% ✓

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The probability is 50% because daughters inherit one X chromosome from each parent.

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Design a pedigree chart for a family with a known autosomal recessiv trait. Which of the following must be true? (Select all that apply)

undefined. A) Both parents must be carriers or affected. ✓

undefined. B) The trait can appear in any gender. ✓

undefined. C) The trait will appear in every generation.

undefined. D) Unaffected parents cannot have affected children.

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Reflect on the importance of understanding genetic pedigrees in real-world applications such as genetic counseling and disease prevention. Provide examples to support your reflection.

Understanding genetic pedigrees is crucial for identifying risks and making informed decisions about health.

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