



## QUESTION WORKBOOK

# Monohybrid inheritance: genetic diagrams that score

Inheritance and population genetics · Unit B16

AQA 3.7.1 · OCR A 6.1.2 · Edexcel A Topic 2.10–2.13 · CAIE 16.2

6 questions · 23 marks

NAVY SCREEN EDITION

**SECTION A** · Short, 1 to 2 marks

- A1** State what is meant by the term allele, and state what is meant by describing someone as a carrier of a recessive condition. [2]

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**SECTION B** · Standard, 3 to 5 marks

- B1** In tomatoes, red fruit is dominant to yellow fruit. Complete a full genetic diagram for a cross between a heterozygous red-fruited plant and a yellow-fruited plant, showing the parental genotypes, the gametes, the offspring genotypes and the expected phenotype ratio. [5]

- B2** A breeder has a tall pea plant and needs to know whether it is homozygous or heterozygous. Explain how a test cross would answer the question, and explain why a result suggesting the plant is homozygous can never be certain. [4]

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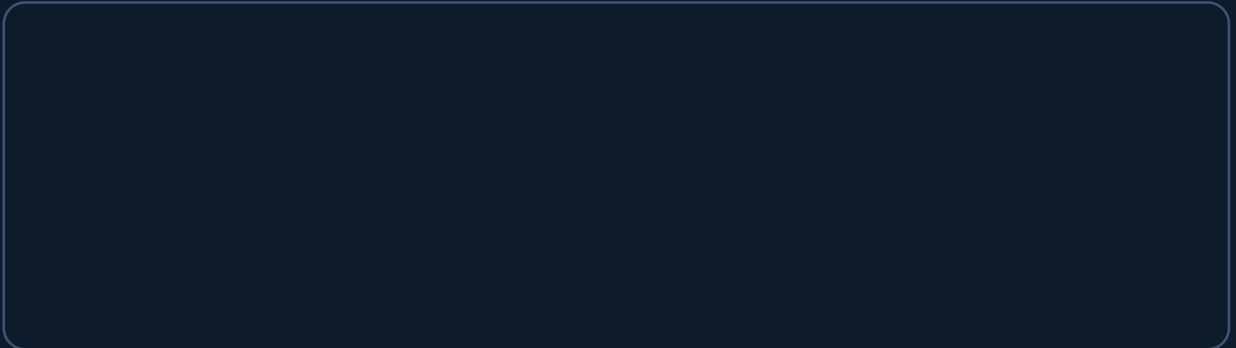
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- B3** Cystic fibrosis is caused by a recessive allele. Two parents are both carriers and neither has the condition. Calculate the probability that their first child has cystic fibrosis, and calculate the probability that their first two children both have it.

[4]



- B4** Haemophilia is caused by a recessive allele carried on the X chromosome. Explain why the condition is far more common in males than in females, and explain why a man with haemophilia can never pass it to his sons.

[4]

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- B5** A woman of blood group AB has children with a man of blood group O. Explain why none of their children can be blood group AB, and explain why none of them can be blood group O.

[4]

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