

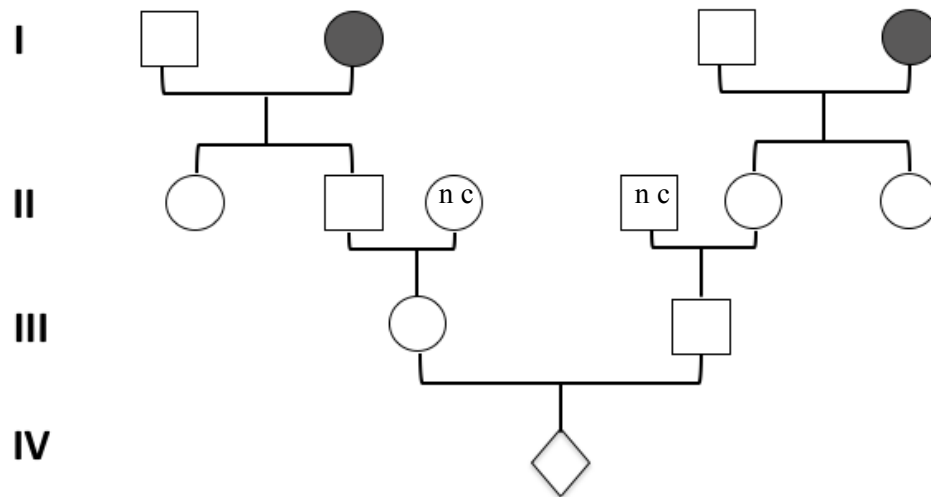
Question 3

20 pt

3.1

The pedigree shows a family in which the 2 women in the first generation (I) are albino.

Albinism is a phenotype transmitted on the autosomal recessive mode.



The couple of generation III is expecting a child.

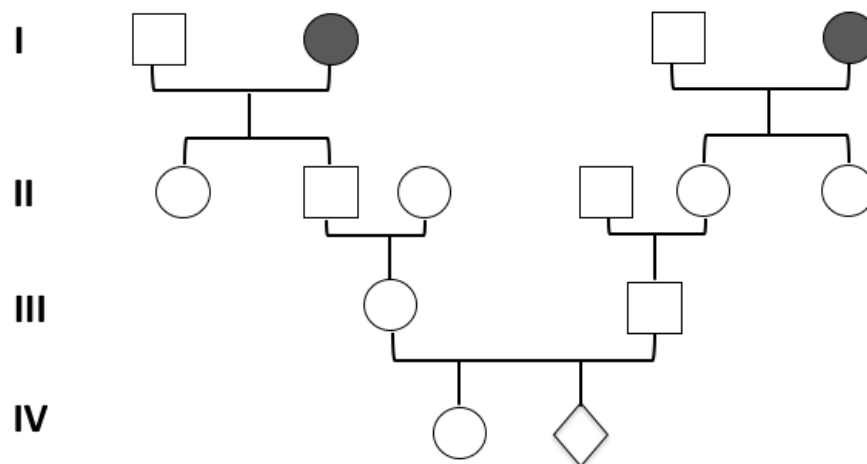
- The pregnant woman has a paternal grand-mother with albinism.
- The father of the child to be born has a maternal grand-mother with albinism.

One assumes that the two people entering in the family by marriage are non-carrier for albinism (indicated as **n c** in the figure).

For the first child in the generation IV what is the probability to be born with albinism?
(show your calculations)

First name : _____ Last name : _____

3.2



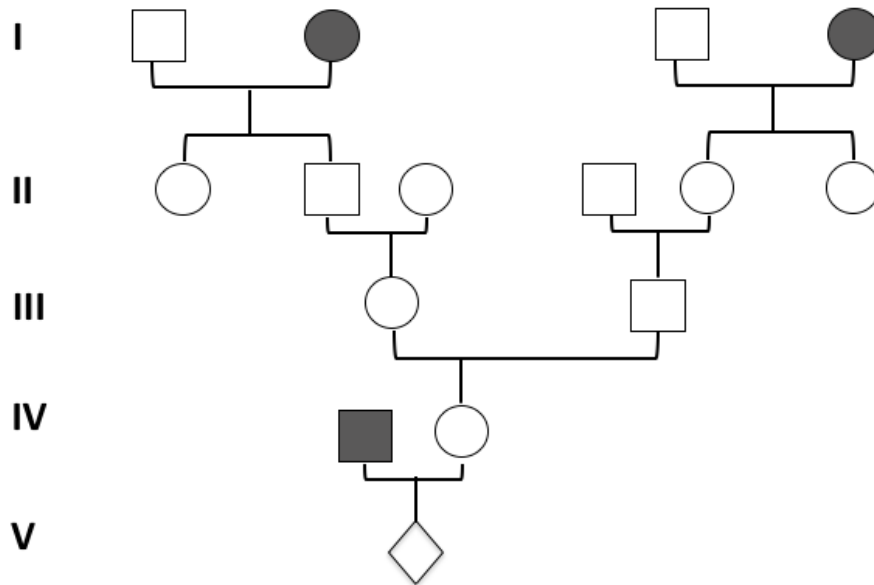
The same family 4 years later: the couple is expecting a second child

Knowing that the first child is a girl non affected with albinism, what is the probability for the second child to be born with albinism ?

(show your calculation)

3.3

Same family 25 years later. The non-albino woman in generation IV is now expecting a child whose father is albino.

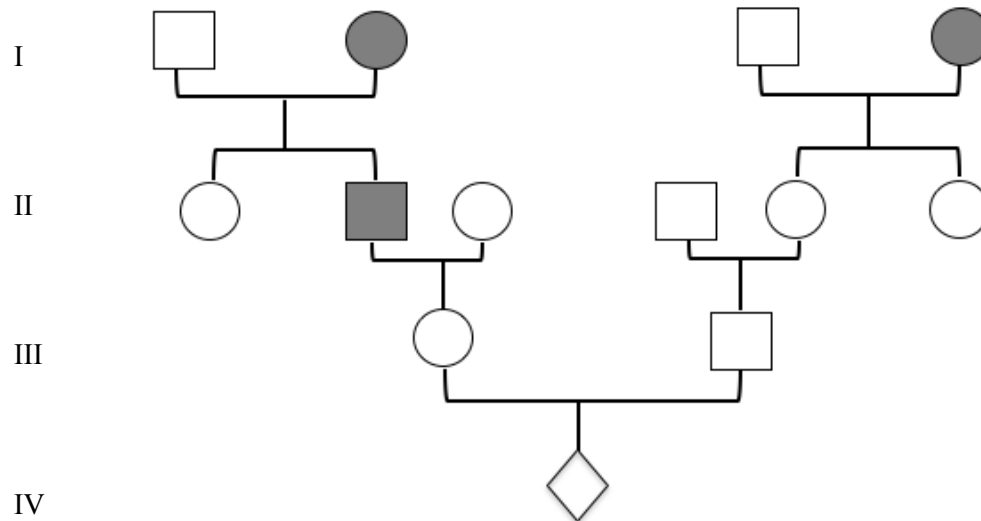


For the first child of this couple (generation V) what is the probability to be borne with albinism ?
(show your calculations)

First name : _____ Last name : _____

3.4

Red/green color blindness (daltonism) is affecting 3 members of the family whose pedigree is shown below. Red/green color blindness is a phenotype transmitted on the X-linked recessive mode.



The couple of generation III is expecting a child.

For the first child of this couple what is the probability to be born color blind ?

• if the first child is a girl ? _____

• if the first child is a boy ? _____

(show your calculations)