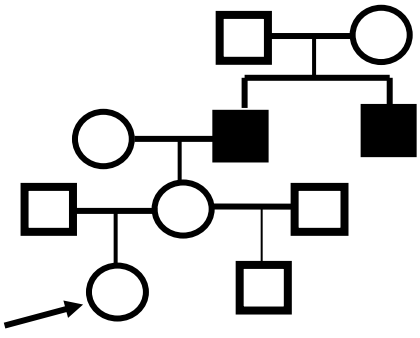
Exercises 9 (week 10) **Genetics** BIO105 (2021)

Question 1:
Adrian's karyotype is 47, XXY (Klinefleter). His mother is green/red color blind; his father is not color blind. Adrian can distinguish red from green.
Adrian's abnormal karyotype is the result of
A. a nondisjunction during meiosis I in the mother.
B. a nondisjunction during meiosis II in the mother.
C. a nondisjunction during meiosis I in the father.
D. a nondisjunction during meiosis II in the father.
E. one cannot tell in which parent a nondisjunction occured

Question 2:
Adrian's karyotype is 47, XXY (Klinefleter). He his color blind. Neither his mother nor his father is color blind.
Adrian's abnormal karyotype is the result of
A. a nondisjunction in his mother.
B. a nondisjunction in his father.
C. one cannot tell in which parent a nondisjunction occured

Question 3:
Angelina has Turner syndrome (45, X0); she is green/red color blind.
Neither his mother nor his father is color blind.
Angelina's abnormal karyotype is the result of
A. a nondisjunction in her mother.
B. a nondisjunction in her father.
C. one cannot tell in which parent a nondisjunction occured.

Question 4: The family tree indicates that 2 brothers in generation II were affected with an X-linked recessive disease (hemophilia).



The woman indicated by the arrow is pregnant. She expects a male baby. The father is healthy. What is the probability that her first boy is affected?

Question 5:
An X-linked recessive gene produces red-green color blindness in humans. A woman with normal color vision whose father was color-blind marries a color-blind man.

5.1) What is the probability that their son will be color-blind?

(A) 0
(B) 1/4
(C) 1/2
(D) 3/4
(E) 1/1

5.2) What is the probability that their daughter will be color-blind?

(A) 0
(B) 1/4
(C) 1/2
(D) 3/4
(E) 1/1