

SEX-LINKED INHERITANCE

Q1) Colour blindness is a recessive characteristic that is sex-linked.

A man who is colour blind mates with a normal woman who does not have colour blindness history in her family.

X^b	$X^B X^b$	$X^B X^B$
X^b	$X^B X^b$	$X^B X^B$
Y	$X^B Y$	$X^B Y$

a) what is the probability of having a colour blind child? 0%

b) what is the probability of having a normal child? 100%

c) What is the probability of having a homozygous normal child? 0% (Tricky)

Q2) Duchene muscle dystrophy is a recessive X-linked disorder that affect muscle tone and eventually results in death. A normal man mates with a normal woman.

a) Determine the genotype of the mother. $X^M X^m$

b) determine the genotype of the father. $X^M Y$

c) can the father be a carrier? NO.

d) what is the chance of having a normal child? 75%

e) what is the chance of having a normal girl? 100%

X^m	$X^M X^m$	$X^M X^M$
X^m	$X^M X^m$	$X^M X^M$
Y	$X^M Y$	$X^M Y$

Q3) A couple had 8 children. They found out that half their boys had haemophilia - a recessive, x-linked disorder as well as half their daughters.

a) determine the genotype of the mother. $X^H X^h$

b) determine the genotype of the father. $X^H Y$

c) what is the probability of having a normal girl? 50%

d) what is the probability of having a normal child? 50%

X^H	$X^H X^h$	$X^H X^H$
X^h	$X^H X^h$	$X^h X^h$
Y	$X^H Y$	$X^h Y$