When a free ear lobed man marry attached ear lobed woman. Then what type of offspring they will have

Case 1 - If man is homozygous free earlobe

♂ (Man) × ♀ (woman)

(free earlobe) FF ff (attached earlobe)

Ff (hybrid free ear lobe)

Case 2 If man is heterozygous free earlobe

♂ (Man) × ♀ (woman)

(hybrid free earlobe) Ff ff (attached ear lobe)

↓ ↓

Ff f

f ♂	F	f
f	Ff	ff

50% free ear lobe and 50% attached ear lobe

A non roller man married a roller woman what would be phenotype (roller or non roller) of the off spring.

Case 1

If woman is ~~homo~~ homozygous roller

♀ (woman) × ♂ (man)

(roller) RR — rr (non-roller)

R — r

Rr (hybrid roller)

Case 2

If woman is heterozygous roller.

♀ (woman) × ♂ (man)

(hybrid roller) Rr — rr (non-roller)

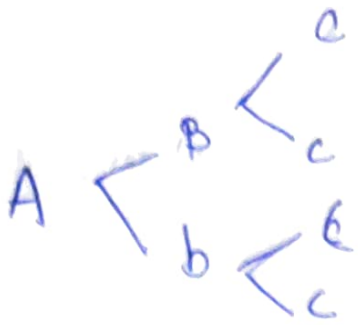
R r — r

♂ \ ♀	R	r
r	Rr	rr

50% roller , 50% non-roller)

AABbCc

2.

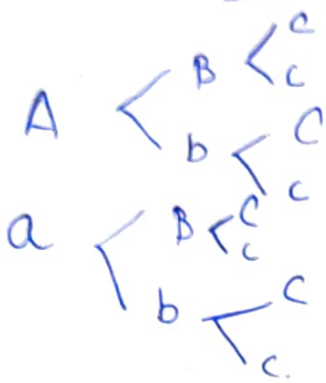


no. of gamete = 4.

gametes = ABC , ABc , AbC , Abc

2^3

Aa Bb Cc



ABC, ABc, AbC, Abc

~~Abc~~,

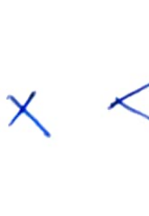
aBC, aBc, abC, abc

No. of gametes = ~~8~~ $2^3 = 8$

Type =

XXXy

No. of gametes $= 2^1 = 2$.



= ~~Xy~~ , Xy , XY

In human, the allele for six fingure (F) is dominant to allele for five fingure (f). If both parents are heterozygous, probability of their first child to be normal (5 fingure)

Heterozygous - Ff

P generation.

♂ Ff × ♀ Ff

F f — gametes

F_1 generation.

♀ \ ♂	F	f
F	FF	Ff
f	Ff	ff

25% - six fingure (FF)
50% - hybrid six fingure (Ff)
25% - five fingure (ff)

~~only~~ 25% (five fingure)

2) If father is heterozygous for six fingure and mother has 5 fingure. What percentage of their children should have six fingure.

♂ Ff × ♀ ff

f f — gametes

F_1 generation.

♀ \ ♂	F	f
f	Ff	ff

50% will have six fingure

for dihybrid

AA BB

↓

AB 1 type of gamete

Aa BB

A → B

a → B

B < A, a no. of gametes = 2^1 = 2.

Aa Bb. – no. of gametes = 2^2 = 4

A < B, b AB, Ab, aB, ab.

a < B, b

AA Bb Cc. 2^2 = 4. no. of gametes

B < C, c

A < b < C, c

ABC, ABc, AbC, Abc

Aa BbCc (contrasting genes – 3)

no. gametes = 2^3 = 8.

A < B < C, c

b < C, c

ABC, ABc, AbC, Abc,

aBC, aBc, abC, abc.

a < B < C, c

b < C, c

A haemophilic man marry a normal woman what would be genotype and phenotype of off spring.

X^H – normal

X^h – haemophilic gene

♂ $X^h Y$

X^h Y

X

♀ $X^H X^H$

X^H — gamates

f_1 generation

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

Genotype of offspring - ① $X^h X^H$ ② $X^H Y$

phenotype of offspring -

① 1 girl child → (haemophilic carrier)

② 1 boy child (normal)

phenotypically all children are normal.

100% daughter carrier, 100% son normal.

In the radish plant long and round traits are incompletely dominant and results in an oval shape

Red colour is dominant over white colour. If an oval white radish plant is crossed with a round red radish that is heterozygous for colour what percent of their offspring should be round and white?

Incomplete dominance

Long - $L_l L_l$

Round - $L_d L_d$

Oval - $L_l L_d$

Complete dominance

Red - R

white - r

$L_l L_d rr$ X $L_d L_d Rr$

$L_l r$ $L_d r$ — gametes

$L_d R$ $L_d r$

F_1 generation

	$L_l r$	$L_d r$
$L_d R$	$L_d L_l Rr$	$L_d L_d Rr$
$L_d r$	$L_d L_l rr$	$L_d L_d rr$

Percentage of their offspring should be round and white ie $L_d L_d rr$ is 25%

If a male haemophilic has a child with a woman who is a carrier for haemophilic. What are the chances that a son will be normal for blood clotting.

X^H - normal gene X^h - haemophilic gene

♂ $X^h Y$

X^h Y

♀ $X^h X^H$

X^h X^H – gamete

F_1 generation

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

Chances of a son will be normal for blood clotting is 50%

In human, normal color vision is dominant to red-green colourblindness (X-linked)

Two parents produce daughter who are all carrier and sons who are all normal what are the probable genotype of the parents.

X^{-c} - colour blind. X^{c} - normal.

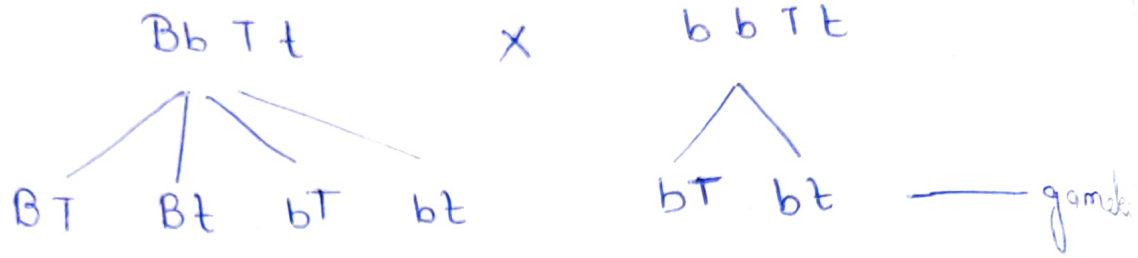
♂ \ ♀	X^{c}	X^{c}
X^{-c}	$X^{-c}X^{c}$	$X^{-c}X^{c}$
Y	$X^{c}Y$	$X^{c}Y$

Genotype of parents are

① for male - $X^{-c}Y$

② for female - $X^{c}X^{c}$

4) if an offspring from the previous problem is ~~mutated~~ mated with genotype bbTt, what will be the phenotype ratio of the offsprings?



f_2 generation -

	BT	Bt	bT	bt
bT	BbTT	BbTt	bbTT	bbTt
bt	BbTt	Bbtt	bbTt	bbtt

3 : 3 : 1 : 1

Black trotter : chestnut trotter : black pacing gait : chestnut-pacing gait.