

Name _____

Genetics Practice Problems



1. For each genotype below, indicate whether it is heterozygous (**He**) or homozygous (**Ho**)

AA <u>Ho</u>	Ee <u>He</u>	Ii <u>He</u>	Mm <u>He</u>
Bb <u>He</u>	ff <u>Ho</u>	Jj <u>He</u>	nn <u>Ho</u>
Cc <u>He</u>	GG <u>Ho</u>	kk <u>Ho</u>	OO <u>Ho</u>
Dd <u>He</u>	HH <u>Ho</u>	Ll <u>He</u>	Pp <u>Ho</u>

2. For each of the **genotypes** below determine what **phenotypes** would be possible.

Purple flowers are dominant to white

PP purple
Pp purple
pp white

Brown eyes are dominant to blue

BB brown
Bb brown
bb blue

Round seeds are dominant to wrinkled

RR round
Rr round
rr wrinkled

Bobtails are recessive (to long tails)

TT long
Tt long
tt bob

3. For each **phenotype** below, list the **genotypes** (remember to use the letter of the dominant trait)

Straight hair is dominant to curly

Ss straight
SS straight
ss curly

Tail spikes are dominant to plain tails

Ss spikes
SS spikes
ss plain

4. Set up the Punnet squares for each of the crosses listed below. **Round seeds are dominant to wrinkled.**

Rr x rr

	R	r
r	Rr	rr
r	Rr	rr

What percentage of the offspring will be round? 50%

Rr x Rr

	R	r
R	RR	Rr
r	Rr	rr

What percentage of the offspring will be round? 75%

RR x Rr

	R	R
R	RR	RR
r	Rr	Rr

What percentage of the offspring will be round? 100%

5.

	T	T
t	Tt	Tt
t	Tt	Tt

tall = 100%

6.

	T	t
T	TT	Tt
t	Tt	tt

tall = 75%

short = 25%

7.

	R	r
R	RR	Rr
R	RR	Rr

RR = 50%

8. $RR \times rr$

	R	R
r	Rr	Rr
r	Rr	Rr

homozygous = 0
all offspring = Rr

9.

	P	P
P	PP	PP
P	PP	PP

white = 100%

10.

	P	P
P	PP	PP
p	pP	pP

purple = 50%

11.

	P	p
P	PP	Pp
p	Pp	pp

purple = 75%

white = 25%

12. heterozygous = Hh
 pure short = HH
 long = hh

13.

	H	H
h	Hh	Hh
h	Hh	Hh

short = 100%

genotype = Hh

14.

	H	h
H	HH	Hh
h	Hh	hh

short = 75%

long = 25%

15. $\frac{25}{100}$ 25% have long hair (hh)

parents must be heterozygous = Hh.

proof

	H	h
H	HH	Hh
h	Hh	hh

hh = 25%