

Monohybrid Practice Problems

Show Punnett Square, give Genotype AND Phenotype for each on your own paper!

1. In humans brown eyes are dominant over blue eyes. What type of offspring would you expect if you crossed a heterozygous brown eyed person to a heterozygous brown eyed person?
2. A widow's peak hairline is dominant to straight hairline. Cross a heterozygous widow's peak hairline person to a straight hairline person.
3. In humans premature gray hair is dominant over normal hair coloring. Cross a homozygous premature gray haired person to a homozygous normal haired person.
4. In humans tongue rolling is dominant to non-tongue rolling. What would be the expected type of offspring if a homozygous tongue roller was crossed to a heterozygous tongue roller?
5. Brown hair is dominant over light colored hair. Cross two light haired people.
6. In a certain plant yellow fruit is dominant to white fruit. A heterozygous plant with yellow fruit is crossed with a plant with white fruit. Determine the probable offspring.
7. In a certain animal, black fur is dominant to white fur. Determine the possible offspring from crosses between:
 - a. Homozygous black x white
 - b. Heterozygous black x heterozygous black
8. In garden peas, round peas are dominant to wrinkled peas. If you crossed a homozygous dominant and homozygous recessive what would be the genotype and phenotype of the offspring?
9. In corn, normal kernels are dominant to waxy kernels. If you crossed a waxy kernel plant to a heterozygous normal plant what type of seeds would be produced?
10. Tall plants are dominant to short plants in the garden pea plant. Cross a heterozygous tall plant to a heterozygous tall plant.

1) B = brown . b = blue

Bb x Bb

	B	b
B	BB	Bb
b	Bb	bb

Genotypes:

BB = $\frac{1}{4} = 25\%$

Bb = $\frac{1}{2} = 50\%$

bb = $\frac{1}{4} = 25\%$

Phenotypes:

Brown = 75%

Blue = 25%

2) H = widow's peak h = straight

Hh x hh

	H	h
h	Hh	hh
h	Hh	hh

Genotypes:

Hh = $\frac{1}{2} = 50\%$

hh = $\frac{1}{2} = 50\%$

Phenotypes

widow's peak = 50%

straight = 50%

3) G = grey hair g = normal

GG x gg

	G	G
g	Gg	Gg
g	Gg	Gg

Genotypes

Gg = $\frac{4}{4} = 100\%$

Phenotypes:

Grey hair = 100%

4) R = rolling r = nonroller

RR x Rr

	R	R
R	RR	Rr
r	Rr	Rr

Genotypes

RR = $\frac{1}{2} = 50\%$

Rr = $\frac{1}{2} = 50\%$

Phenotypes

Rollers = 100%

5) B = brown b = light

	bb x bb	
	b	b
b	bb	bb
b	bb	bb

Genotypes:

bb = 100%

Phenotypes:

Light = 100%

6) Y = yellow y = white

	Yy x yy	
	Y	y
y	Yy	yy
y	Yy	yy

Genotypes

Yy = $\frac{1}{2}$ = 50%

yy = $\frac{1}{2}$ = 50%

Phenotypes

Yellow = 50%

White = 50%

7) B = black b = white

a) BB x bb

	BB x bb	
	B	B
b	Bb	Bb
b	Bb	Bb

Genotypes

Bb = 100%

Phenotypes:

Black = 100%

b) Bb x Bb

	Bb x Bb	
	B	b
B	BB	Bb
b	Bb	bb

Genotypes

BB = $\frac{1}{4}$ 25%

Bb = $\frac{1}{2}$ 50%

bb = $\frac{1}{4}$ 25%

Phenotypes:

Black = 75%

White = 25%

8) R = round r = wrinkled

	RR	\times	rr
	R		r
r	Rr	Rr	
r	Rr	Rr	

Genotypes:
 $Rr = 100\%$

Phenotypes:
 Round = 100%

9) N = normal n = waxy

	nn	\times	Nn
	n		N
N	Nn	Nn	
n	nn	nn	

Genotypes:
 $Nn = \frac{1}{2} = 50\%$
 $nn = \frac{1}{2} = 50\%$

Phenotypes:
 Normal = 50%
 Waxy = 50%

10) T = tall t = short

	Tt	\times	Tt
	T		t
T	TT	Tt	
t	Tt	tt	

Genotypes:
 $Tt = \frac{1}{2} = 50\%$
 $TT = \frac{1}{4} = 25\%$
 $tt = \frac{1}{4} = 25\%$

Phenotypes:
 Tall = 75%
 Short = 25%