AP Bio Math Mondays

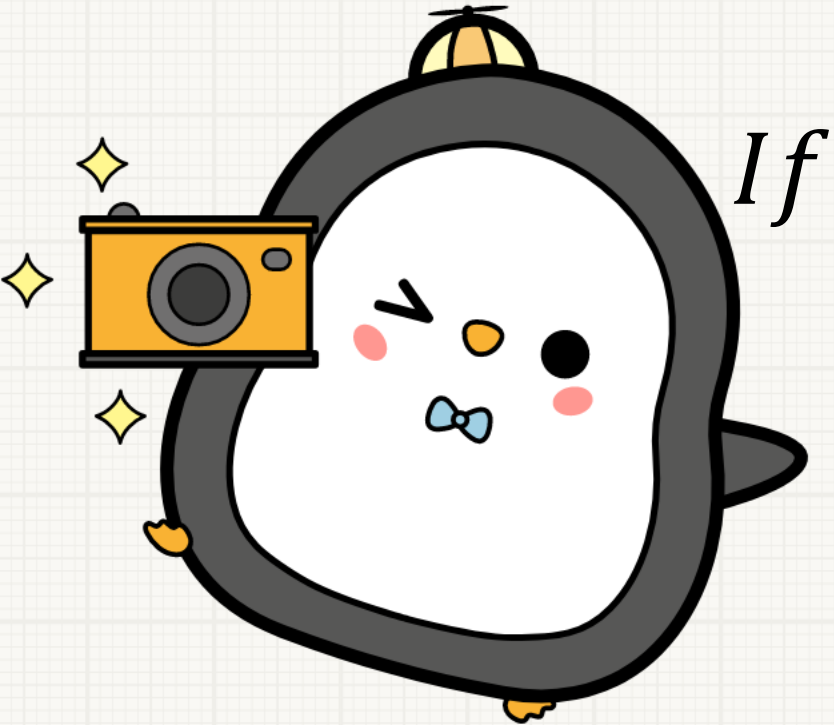
Laws of Probability: Multiplication & Addition Rule

NOTES

Probability Rules

If A and B are mutually exclusive, then:

$$P(A \text{ or } B) = P(A) + P(B)$$



If A and B are independent, then:

$$P(A \text{ and } B) = P(A) \times P(B)$$

Math Monday #2 Probability Rules

In pea plants, smooth seeds are dominant to wrinkled, and purple flowers are dominant to white. In a dihybrid cross, what is the phenotypic ratio?

	S	s
S	SS	Ss
s	Ss	ss

Smooth: ¼ + ½ = ¾

Wrinkled: ¼

	P	p
P	PP	Pp
p	Pp	pp

Purple: ¼ + ½ = ¾

White: ¼

Math Monday #2

Probability Rules

In pea plants, smooth seeds are dominant to wrinkled, and purple flowers are dominant to white. In a dihybrid cross, what is the phenotypic ratio?

Smooth: ¾ **Wrinkled: ¼** **Purple: ¾** **White: ¼**

Smooth & Purple: ¾ x ¾ = 9/16

Wrinkled & Purple: ¼ x ¾ = 3/16

Smooth & White: ¾ x ¼ = 3/16

Wrinkled & White: ¼ x ¼ = 1/16

Example Problem

Probability Rules

In pea plants, T = tall, t = dwarf, R = round seeds, and r = wrinkled seeds. If a TtRr plant is crossed with a Ttrr plant, what fraction of the offspring will be tall and wrinkled?

	T	t
T	TT	Tt
t	Tt	tt

Tall: ¼ + ½ = ¾

Wrinkled: ½

Tall & Wrinkled:
¾ x ½ = 3/8

	R	r
r	Rr	rr
r	Rr	rr