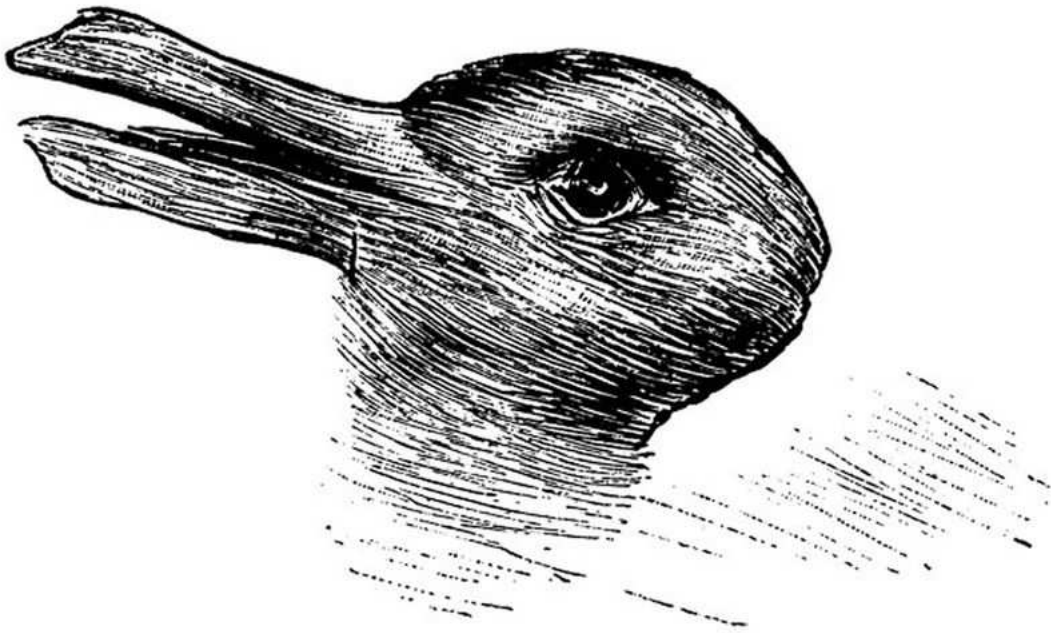


# Split the Difference

October 12, 2018

## Warm up: an Optical Illusion



- What does the picture show?
- Can you see anything else in this picture?
- Does your partner see the same thing you see?

- If not, can both of you be right?

The picture above is an *optical illusion*.

What do you think an optical illusion is?

## Split the Difference (or Sharing Problems)

1. Bob and Tom have many coins.  
Bob has 2 more coins than Tom.

Bob:



Tom:



How many coins should Bob give to Tom so that they have the same number of coins?

*Answer:* Bob should give  coin to Tom.

2. Ella has 4 more pancakes than Stella.  
How many pancakes should Ella give Stella so  
that they have the same number of pancakes?

*Draw a picture:*

Ella:

Stella:

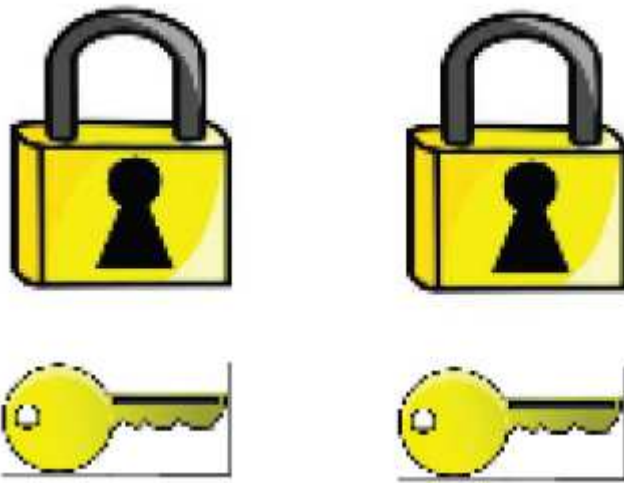
*Answer:* Ella should give Stella  pancakes.

1. Jack has 100 more stamps than Kate.  
How many stamps should Jack give Kate so that they have the same number of stamps?

*Answer:* Jack should give Kate  stamps.

## Locks and Logic

1. There are 2 different keys that open 2 different locks. How many trials do you need to figure out which key opens which lock?



*Answer:*

2. (Challenge!)

There are 3 different keys that open 3 different locks. How many trials do you need to figure out which key opens which lock?

Consider the worst case scenario.



*Answer:*

## Homework

1. Share the optical illusion with your parents. What did we discuss an optical illusion in a math class?
2. Explain the solutions of the problems with the locks to your parents.
3. Finish problems from the class. Which one was your favorite?