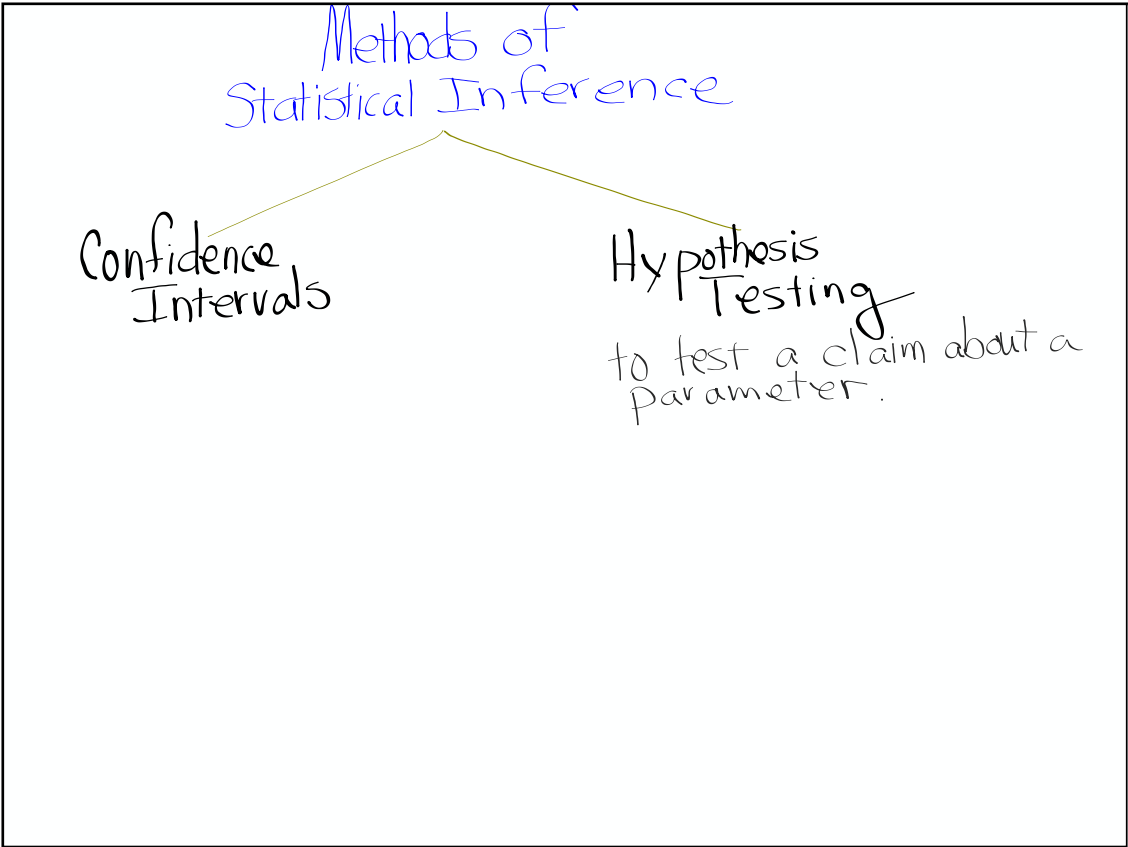TODAY : - Start 9.1
- Review Ch.8 (FRAPPY!)

TOMORROW - Ch.8 TEST

FRIDAY - | 9.1 | Hypothesis Testing

Methods of
Statistical Inference

Confidence Intervals

Hypothesis Testing
to test a claim about a parameter.

Methods of
Statistical Inference

Confidence Intervals

Hypothesis Testing
to test a claim about a parameter.

allows us to weigh evidence
in favor of, or against, a claim.
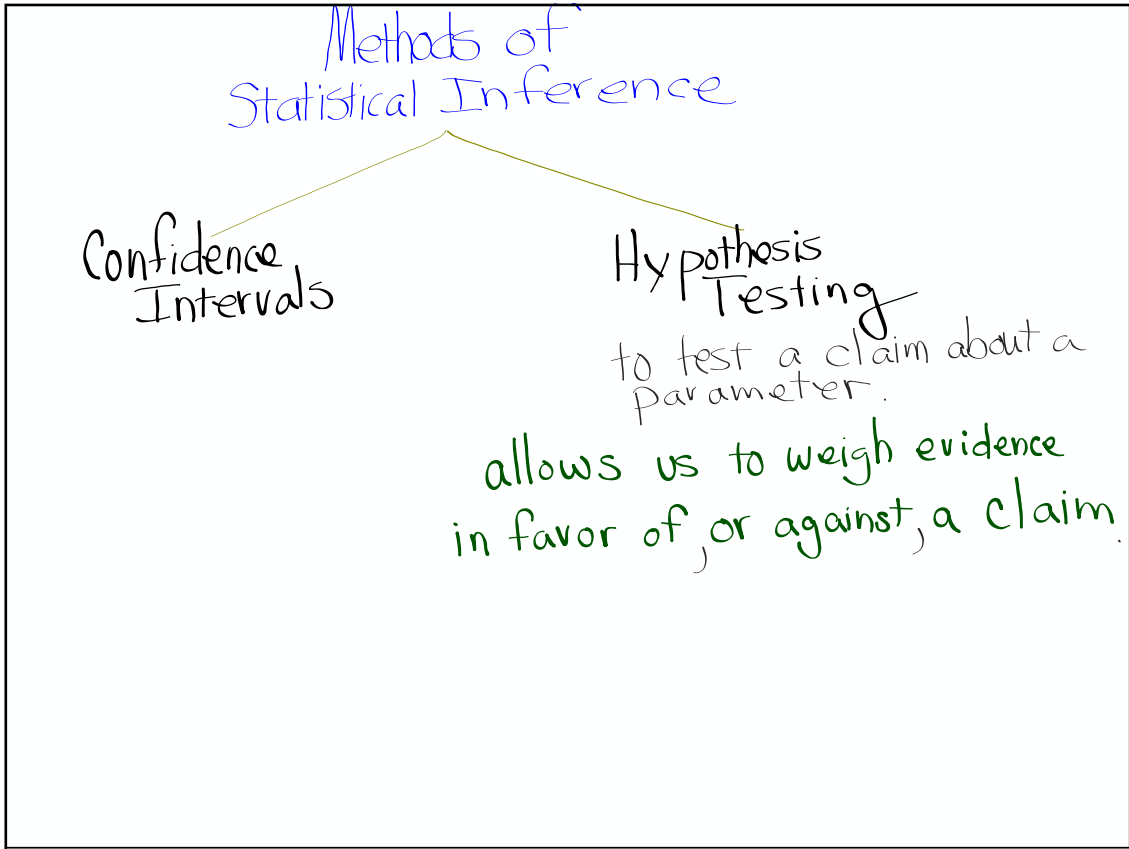
Activity to illustrate
the reasoning of a
hypothesis test.

Chapter 9 Intro: Is Mr. Cedarlund a good free throw shooter?

VS

Mrs. Cedarlund claims he is an 80% free throw shooter. To prove his <u>skills</u> he shoots 50 free throws and makes 32 shots. Is Mr. Cedarlund exaggerating about his free throw skills?

1. Identify the population, parameter, sample and statistic.

Population: _____   Parameter: _____

Sample: _____   Statistic: _____

2. There are two possible explanations for why Mr. Cedarlund only made 32/50 shots.

    1.)

    2.)

Mrs. Cedarlund claims he is an 80% free throw shooter. To prove his <u>skills</u> he shoots 50 free throws and makes 32 shots. Is Mr. Cedarlund exaggerating about his free throw skills?

1. Identify the population, parameter, sample and statistic.

Population: All free throws by Mr. C   Parameter: p true proportion made

Sample: 50 free throws   Statistic: $\hat{p} = \frac{32}{50} = .64$

2. There are two possible explanations for why Mr. Cedarlund only made 32/50 shots.

    1.) Mr. C is an 80% shooter but had a bad day.

    2.) Mr. C is exaggerating.

To test Mr. Cedarlund's claim, we will **assume #1, he is an 80% free throw shooter**, and examine the likelihood that she makes 32/50 shots through simulation.

3. Devise a method to easily simulate 50 free throws **shot by an 80% free throw shooter** by What is your sample proportion of shots made?

4. Repeat for another sample of 50 spins. Calculate the sample proportion. $\hat{p}$

5. Add your two sample proportions to the dotplot on the board. Each person in your group should add two dots to the board. Sketch the dotplot below.

Die   1 2 3 4   make

            5   miss

            6   ignore

5. Add your two sample proportions to the dotplot on the board. Each person in your group should add two dots to the board. Sketch the dotplot below.

proportion of FT made
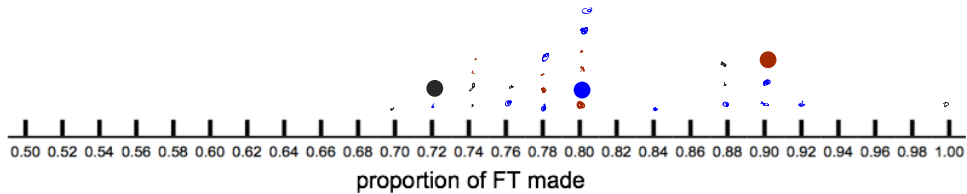
6. What does each dot represent?

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6. What does each dot represent?

The proportion of free throws made from a sample of 50 shot by a 80% free throw shooter.

7. One student says, "Each dot represents the proportion of free throws made out of 50 free throws shot by Mr. Cedarlund." Is this correct? Explain.

No.
We don't know if Mr. C is an 80% shooter. The dots represent a proportion of made shots by an 80% shooter.

8. What percentage of the dots represent a percentage of 64% or less?

0 %

Interpret this percentage in context.

Assuming that Mr. C is an 80% F.T. shooter there is a 0% probability of getting a sample proportion of 0.64 or less purely by chance.

9. Based on your answer to Question 8, does the observed $\hat{p} = 0.64$ result give convincing evidence that Mr. Cedarlund is exaggerating? Or is it plausible that an 80% shooter can have a performance this poor by chance alone?

9. Based on your answer to Question 8, does the observed $\hat{p} = 0.64$ result give convincing evidence that Mr. Cedarlund is exaggerating? Or is it plausible that an 80% shooter can have a performance this poor by chance alone?

Because the P-Value of 0% is _less than_ Above 5% we don't have convincing evidence that Mr. C is _not_ an 80% shooter.

Hypothesis Tests will have

    — Null Hypothesis

    - P- Value

    - Conclusion

2. There are two possible explanations for why Mr. Cedarlund only made 32/50 shots.

$H_0: P = 0.8$

$H_A: P < 0.8$

1.) Mr. C is an 80% shooter but had a bad day.

2.) Mr. C is exaggerating.

← We'll always assume that the hypothesized values are correct.

In AP Science courses, only the "research hypothesis" is stated.

In AP stats, both are stated.

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8. What percentage of the dots represent a percentage of 64% or less?

Interpret this percentage in context.

P-Value

Assuming that Mr. C is an 80% F.T. shooter, there is a ___ probability of getting a sample proportion of 0.64 or less purely by chance.

9. Based on your answer to Question 8, does the observed $\hat{p}$ = 0.64 result give convincing evidence that Mr. Cedarlund is exaggerating? Or is it plausible that an 80% shooter can have a performance this poor by chance alone?

Conclusion

Because the _____ is _____ than 5% we _____ have convincing evidence that Mr. C is not an 80% shooter.

TIME FOR the

FRAPPY !

or the Ch. 8 Pratice Test