

## Statistical hypothesis testing

1

- Set up the hypothesis

$$H_0 : p = a$$

$$H_1 : p < a \quad \text{one sided test}$$

$$H_1 : p = a \quad \text{two sided test}$$

$$H_1 : p > a \quad \text{one sided test}$$

- State the significance level (as a percentage) – the lower the value the more stringent the test.
- State the distribution/model used in the test Binomial (n,p)
- Calculate the probability of the observed results occurring using the assumed model
- Compare the calculated probability to the significance level – Accept or reject  $H_0$
- Write a conclusion (in context)

2

Reject  $H_0$

“There is sufficient evidence to suggest that .....is underestimation/overestimating.....”

Accept  $H_0$

“There is insufficient evidence to suggest that .....increase/decrease.....therefore conclude that  $p = a$ .”

3

### CRITICAL VALUES AND REGIONS

For the above example

Binomial (20, 0.3) 5% Significance Level

$$P(X \leq 0) = 0.000798 \quad (0.01\%)$$

$$P(X \leq 1) = 0.00764 \quad (0.08\%)$$

$$P(X \leq 2) = 0.0355 \quad (3.55\%) < 5\%$$

$$P(X \leq 3) = 0.107 \quad (10.7\%) > 5\%$$

Critical Values : 0, 1, and 2

Critical Region:  $X \leq 2$



# How do we use Knowledge Organisers in Mathematics?

## How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

## How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

GLUE HERE