

STATISTICS WORKSHEET 4

1. d
2. a
3. a
4. b
5. a
6. d
7. c
8. b
9. b
10. Histograms are a special kind of bar graph that shows a bar for a range of data values instead of a single value. A box plot on the other hand is a data display that draws a box over a number line to show the interquartile range of the data. The 'whiskers' of a box plot show the least and greatest values in the data set.
11. Statistical significance is often calculated with statistical hypothesis testing, which tests the validity of a hypothesis by figuring out the probability that your results have happened by chance.
12. Pick random values in the 0,1 interval - this can be done by spinning a pointer or many other ways. This is an example of the Uniform distribution (continuous). (It's clearly non-Gaussian.) Another one is to count the number of Heads when tossing 5 coins over and over. This is an example of the Binomial distribution. (It's very clearly non-Gaussian - note that it's a "discrete" probability distribution.)

13. Income is the classic example of when to use the median instead of the mean because its distribution tends to be skewed. The median indicates that half of all incomes fall below 27581, and half are above it. For these data, the mean overestimates where most household incomes fall.
14. The likelihood is the probability that a particular outcome is observed when the true value of the parameter is, equivalent to the probability mass on; it is not a probability density over the parameter. The likelihood, should not be confused with, which is the posterior probability of given the data.