

Drawing a Basic Normal Curve

1. Draw an x axis.
2. Draw a bell-shaped curve above the x axis.
3. Draw a vertical line perpendicular to the x axis and going through the top of the curve.

Properties of a Basic Normal Curve

1. The vertical line is the axis of symmetry, meaning it divides the curve in two and each side is the mirror image of the other.
2. The x value where the line of symmetry crosses the x axis is the mean and the median for the data set.

Drawing an Extended Normal Curve

1. Draw a basic normal curve.
2. Draw vertical lines perpendicular to the x axis to the two points of inflection.

Point of Inflection: On a curve, there may be a part of the curve in which it is obviously curving up, and another part of the curve where it is obviously curving down. The point at which the curve changes from curving up to curving down (or vice versa) is called a point of inflection.

Properties of an Extended Normal Curve

The distance from a point of inflection to the center is the standard deviation. Note that the distance is the same regardless of which point of inflection is chosen (symmetry).

To calculate the standard deviation from the curve, first subtract the mean from the x coordinate of one of the inflection points. The absolute value of that difference is the standard deviation.

Calculating 1st and 3rd Quartiles

$$Q_1 \approx \mu - (0.675)\sigma$$

$$Q_3 \approx \mu + (0.675)\sigma$$



