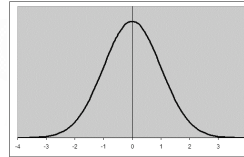


# Normal Distribution

January 14, 2004

## Normal Curve



- Very important idea in statistics
- Also known as "bell curve"
- A natural distribution
- Becomes smoother with larger sample size
- Symmetrical
- Can be narrower or wider
- Ends never touch base
- Center point can shift

## Things with "normal" distribution

- Physical measures
  - Height
  - Weight
- Psychological measures
  - Intelligence
  - Aptitude
- Many things occurring in nature
- Falling Balls Simulation

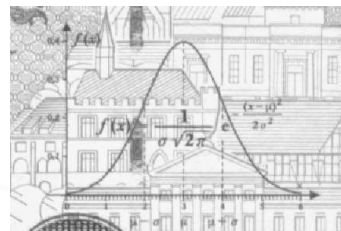
## History of the Normal Curve

- Originated with Abraham de Moivre
  - A gambling consultant
  - Discovered the curve when examining coin flips (approximately 1730)
- Adolph Quetelet (Belgian astronomer) applied curve to social sciences
  - Height and chest measurements of soldiers
- Karl Fredrich Gauss figured out the formula to calculate the normal curve

## Normal Curve Trivia



## Close-up



## Normal Curve Controversies

- The Bell Curve (book published in 1994)
  - Asserted that entire races were more (or less) intelligent than other races
  - Big controversy ensued
  - Other scientists refuted the authors' findings

## Hands-on Activity

- Start the Falling Balls Simulation from the class website
- Use the “Normal Distribution” Java applet on the class web site to explore the behavior of the normal curve.
  - What do you think it means for scores when the curve is fairly flat?
  - What do you think it means for scores when it is fairly tall?