Daily Agenda

Learning Targets:
I can compute a z-score from a data point and find the percentage of data falling above or below a point.

Homework
10.7 Day 2 Worksheet

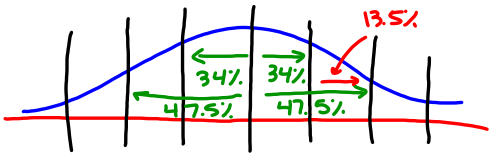
Assessments
Unit 10 B Test - 5/23

I have not failed. I have just found 10,000 ways that won't work
-Thomas Edison

Nov 15-8:24 PM

Usual vs. Unusual

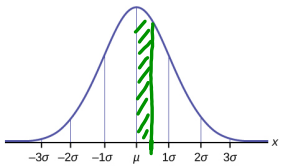
Usual scores fall within 2 standard deviations from the mean. Convert to z-scores between -2 and 2.



May 15-12:39 PM

10.7 Properties of Normal Distributions

Normal Distribution
The area under the curve is 1; 100%.



How would we find the area under the curve for half a standard deviation?

Apr 15-8:56 PM

We cannot simply divide the area that we know in half.
Why?

We can either use technology (calculator) or mathematical tables to find the area under the curve for any standard deviation.

May 14-3:05 PM

Finding Normal Percentiles

2nd VARS

normalcdf(lower,upper,mean,std deviation)

Finds the proportion of area under the curve:
- -between two z-scores
- -below a z-score
- -above a z-score

- Can either use original values or z-scores
- Use a really large or small # when not bounded on both sides -1 E 99

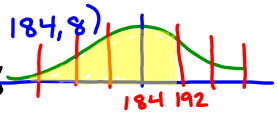
May 14-8:05 PM

Example

The Dutch are among the tallest people in the world. Assume that the heights follow a Normal distribution. The average Dutch man is 184cm and the standard deviation is 8cm.

What percentage of Dutch men are less than 190cm?

normalcdf(-1E99, 190, 184, 8)
.773 or 77.3%



May 14-9:53 PM

Example

The Dutch are among the tallest people in the world. Assume that the heights follow a Normal distribution. The average Dutch man is 184cm and the standard deviation is 8cm.

What percentage of Dutch men are between 170 and 180cm tall?

normalcdf (170, 180, 184, 8)
26.8%

May 14-9:53 PM

Finding z-scores from Percentiles

invNorm(area,mean,standard deviation)

percentile as a decimal — 0 — 1

Finds the z-score for an area under the curve

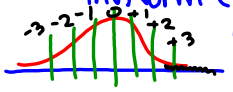
Area is shading graph from left to right

May 14-8:05 PM

Example

The Dutch are among the tallest people in the world. Assume that the heights follow a Normal distribution. The average Dutch man is 184cm and the standard deviation is 8cm.

Above what height are the tallest 10% of Dutch men? 194.25cm or ↑



invNorm (area, mean, SD)
(.9, 184, 8)

May 14-9:53 PM

invNorm (.9, 0, 1)
z-score = 1.28

$1.28 = \frac{x - 184}{8}$

x = 194.25cm

May 17-11:24 AM

Example

Most people think that normal body temperature is 98.6°F. Researchers report that a more accurate figure is 98.2°F with a standard deviation of 0.7°F.

Below what body temperature are the coolest 20% of all people?

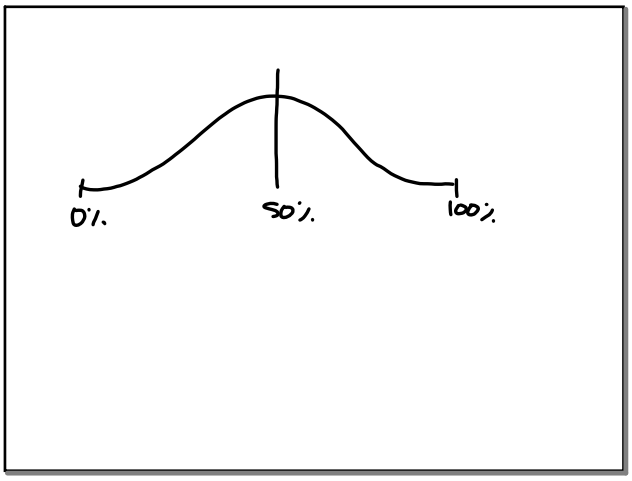
invNorm (.2, 98.2, .7)
97.6°F

May 14-8:04 PM

normalcdf
Finds % or area

invNorm
Finds z-score or value

May 17-11:29 AM



May 17-11:34 AM