Study Session Week of 10/16
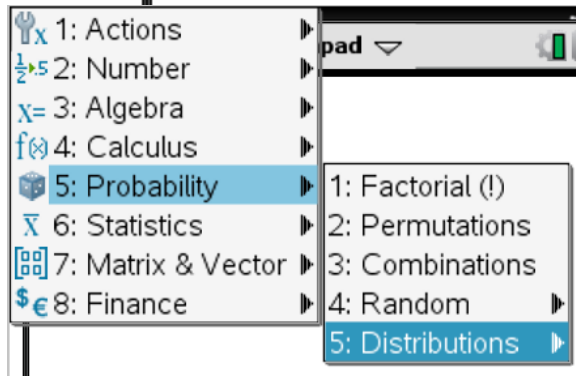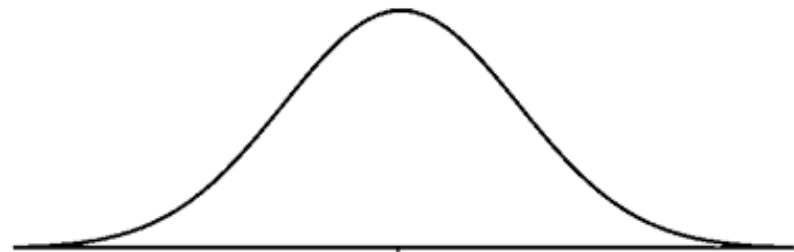
- I will use the calculator to solve normal distribution problems

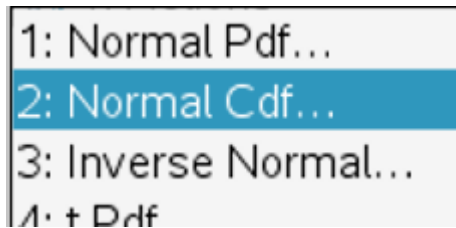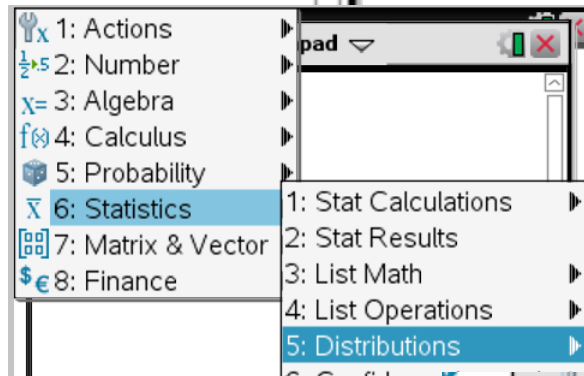- I will know what to write to get full credit on a calculator solved problem

Agenda:

- Helpful functions on the calculator
  - Normal Cdf (Normal Pdf)
  - Inverse Normal

- What else you need to include (how to get E's)
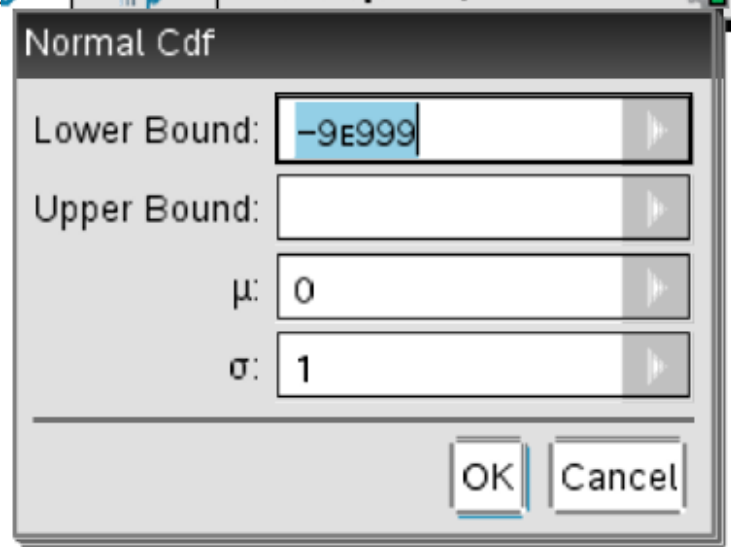
- Practice Problems
  - MC
  - FR

# Normal Cdf

NOT Pdf

Scratchpad ▽

1: Actions
2: Number
3: Algebra
4: Calculus
5: Probability
6: Statistics
7: Matrix & Vector
8: Finance

1: Factorial (!)
2: Permutations
3: Combinations
4: Random
5: Distributions

1: Actions
2: Number
3: Algebra
4: Calculus
5: Probability
6: Statistics
7: Matrix & Vector
8: Finance

1: Stat Calculations
2: Stat Results
3: List Math
4: List Operations
5: Distributions
6: Confidence

1: Normal Pdf…
2: Normal Cdf…
3: Inverse Normal…
4: t Pdf

Normal Cdf

Lower Bound: −9ᴇ999
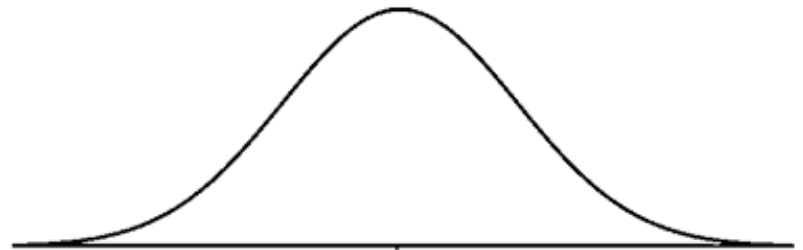
Upper Bound:

μ: 0

σ: 1

OK Cancel

MC Practice

A trucking firm determines that its fleet of trucks averages a mean of 12.4 miles per gallon with a standard deviation of 1.2 miles per gallon on cross-country hauls. What is the probability that one of the trucks averages fewer than 10 miles per gallon?
(A)   0.0082
(B)   0.0228
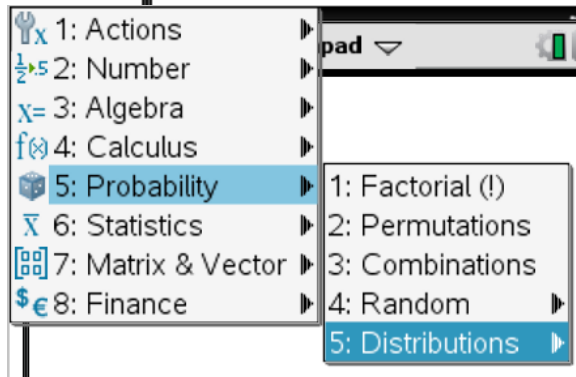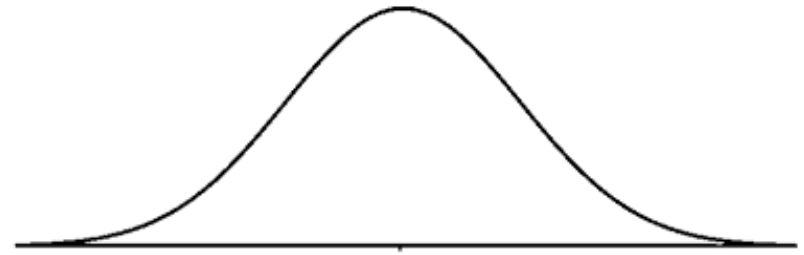(C)   0.4772
(D)   0.5228
(E)   0.9772
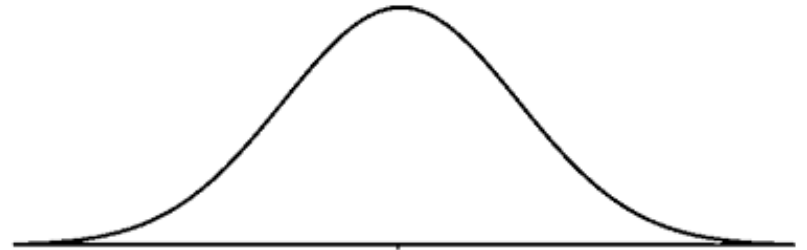
An electronic product takes an average of 3.4 hours to move through an assembly line. If the standard deviation is 0.5 hour, what is the probability that an item will take between 3 and 4 hours?
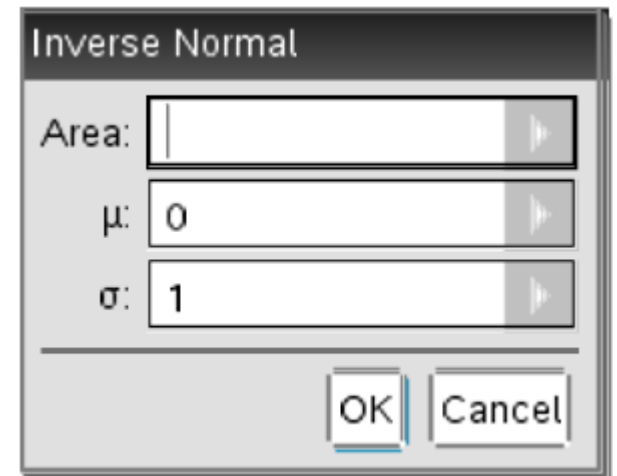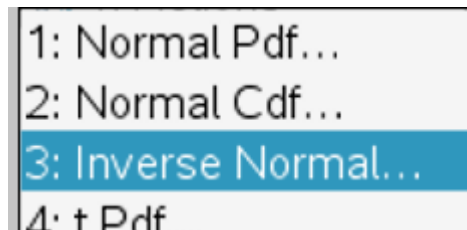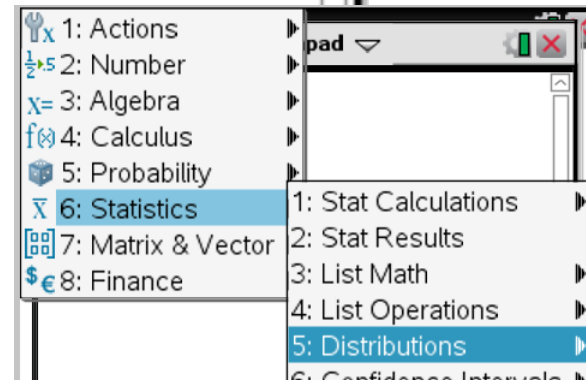(A)   0.2119
(B)   0.2295
(C)   0.3270
(D)   0.3811
(E)   0.6730

Inverse Normal

Scratchpad ▽

1: Actions ▶
2: Number ▶
3: Algebra ▶
4: Calculus ▶
5: Probability ▶
6: Statistics ▶
7: Matrix & Vector ▶
8: Finance ▶

pad ▽

1: Factorial (!)
2: Permutations
3: Combinations
4: Random ▶
5: Distributions ▶

OR

1: Actions ▶
2: Number ▶
3: Algebra ▶
4: Calculus ▶
5: Probability ▶
6: Statistics ▶
7: Matrix & Vector ▶
8: Finance ▶

pad ▽

1: Stat Calculations ▶
2: Stat Results
3: List Math ▶
4: List Operations ▶
5: Distributions ▶
6: Confidence Intervals ▶

1: Normal Pdf…
2: Normal Cdf…
3: Inverse Normal…
4: t Pdf…

Inverse Normal
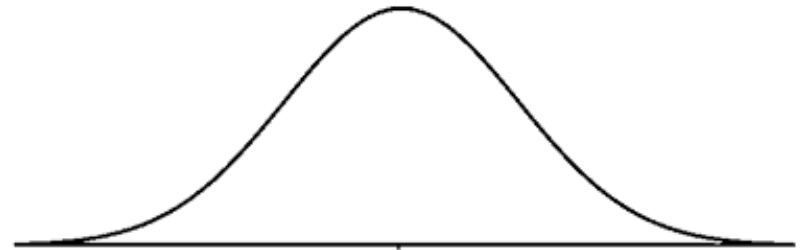
| Area:	
μ:	0
σ:	1

OK   Cancel

MC Practice

The average noise level in a restaurant is 30 decibels with a standard deviation of 4 decibels. Ninety-nine percent of the time it is below what value?
(A)   20.7
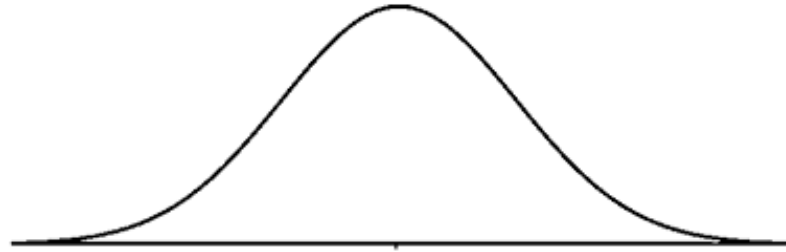(B)   32.0
(C)   33.4
(D)   37.8
(E)   39.3

The mean score on a college placement exam is 500 with a standard deviation of 100. Ninety-five percent of the test takers score above what?
(A)   260
(B)   336
(C)   405
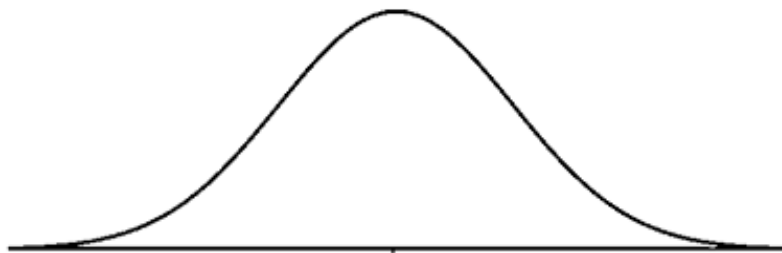(D)   414
(E)   664
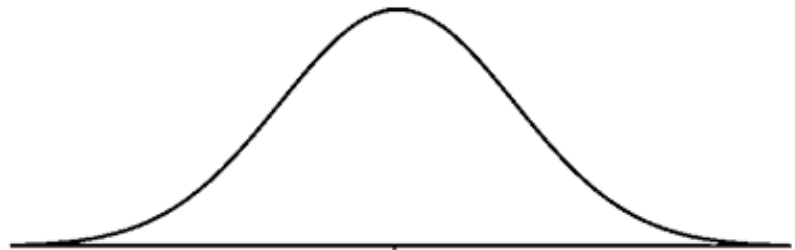
# What MUST I write to get an E?

- NormalCdf(

More Practice

The mean income per household in a certain state is $9500 with a standard deviation of $1750. The middle 95% of incomes are between what two values?
(A) $5422 and $13578
(B) $6070 and $12930
(C) $6621 and $12379
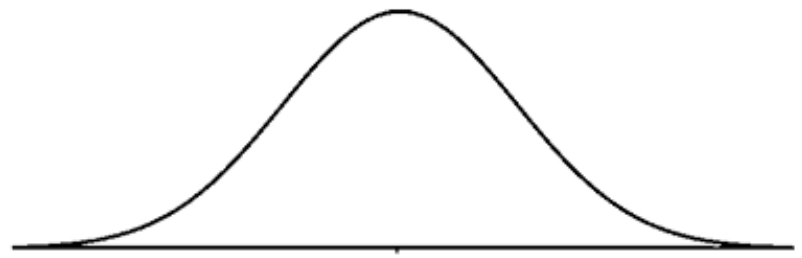(D) $7260 and $11740
(E) $8049 and $10951

7.   Heights of fourth graders are normally distributed with a mean of 52 inches and a standard deviation of 3.5 inches. Ten percent of fourth graders should have a height below what number?

(A)   -1.28 inches
(B)   45.0 inches
(C)   47.5 inches
(D)   48.9 inches
(E)   56.5 inches
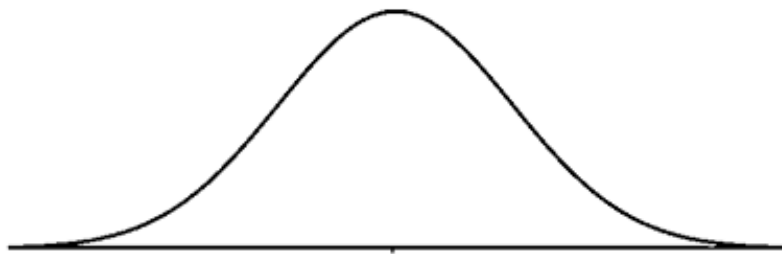
More Practice

A machine is used to fill soda bottles in a factory. The bottles are labeled as containing 2.0 liters, but extra room at the top of the bottle allows for a maximum of 2.25 liters of soda before the bottle overflows. The standard deviation of the amount of soda put into the bottles by the machine is known to be 0.15 liter.

(a)   Overfilling the bottles causes a mess on the assembly line, but consumers will complain if bottles contain less than 2 liters. If the machine is set to fill the bottles with an average of 2.08 liters, what proportion of bottles will be overfilled?

(b)   If management requires that no more than 3% of bottles should be overfilled, the machine should be set to fill the bottles with what mean amount?

(c)   Complaints from consumers about underfilled bottles leads the company to set the mean amount to 2.15 liters. In this situation, what standard deviation would allow for no more than 3% of the bottles to be overfilled?
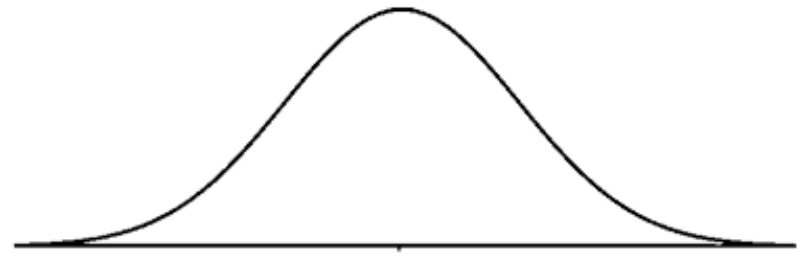
More Practice
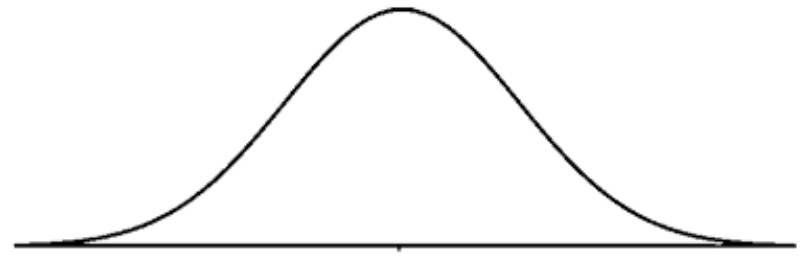
A student scores 75 on a test with $\mu = 60$ and $\sigma = 11$. What would be the equivalent score in a distribution with $\mu = 20$ and $\sigma = 20$?
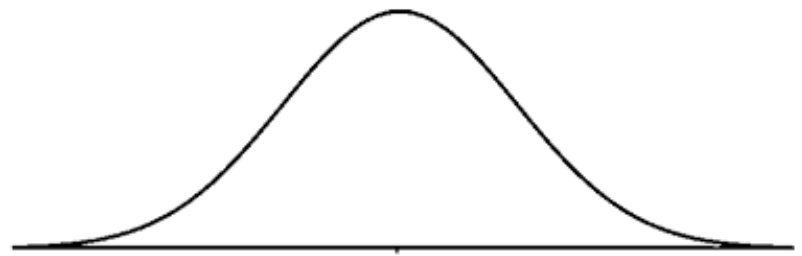
More Practice

An educational testing service has designed a new test of mechanical aptitude. Scores on this test are normally distributed with μ = 400 and σ = 60.

a) What score would you need to be in the top 15%?
b) What score represents the 45th percentile?
c) If 200 students at McCallum took the test, how many would you expect to score below 300?

More Practice

Assume the cholesterol levels of Adult American women can be described by a Normal model with a mean of 188 mg/dL and a standard deviation of 24.

a)   What percent of adult women do you expect to have cholesterol levels over 200 mg/dL?

b)   What percent of adult women do you expect to have cholesterol levels between 150 and 170 mg/dL?

c)   Estimate the interquartile range of the cholesterol levels.

d)   Above what value are the highest 15% of women's cholesterol levels?