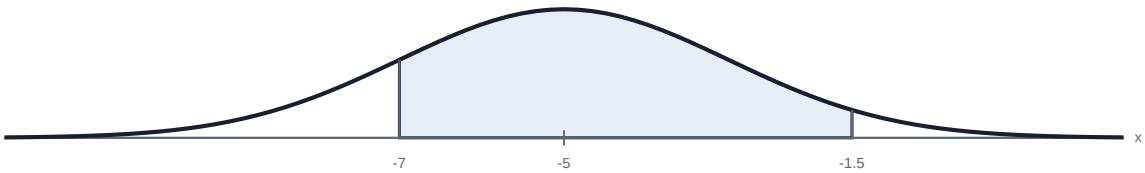
Name _____ Score _____ Teacher _____ Date _____

Normal Distribution

For X normally distributed with the stated mean and positive standard deviation, standardize with z = (x - mean) / standard deviation. Use the supplied reference values or the labeled calculator method. Round probabilities to four decimal places and percentile cutoffs to two decimal places.

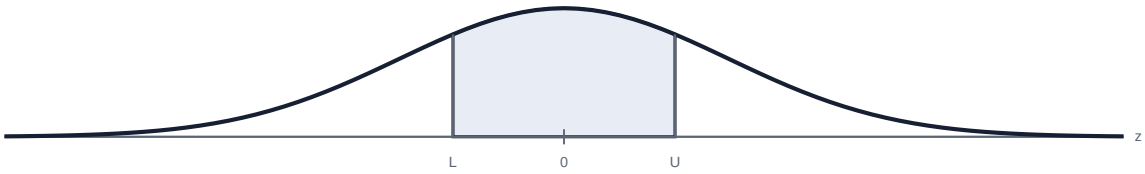
1. X is normal with mean -5 and standard deviation 2. Find P(-7 < X < -1.5).

Provided normal-CDF values: Phi(-1) = 0.158655261; Phi(1.75) = 0.959940845.



2. X is normal with mean 0 and standard deviation 1. Find the symmetric central interval [L, U] containing probability 0.5. Round endpoints to two decimal places.

Provided inverse-normal value: Phi^-1(0.75) = 0.674490; symmetry gives the lower z value.



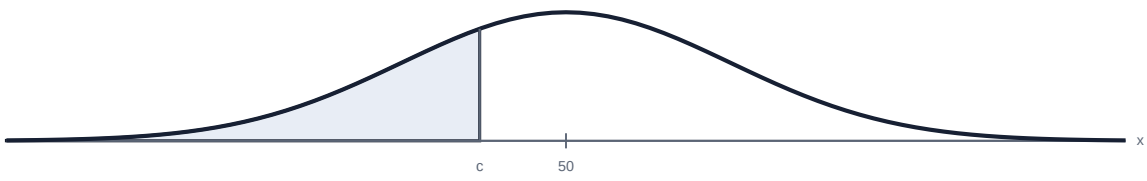
Name _____ Score _____ Teacher _____ Date _____

Normal Distribution

For X normally distributed with the stated mean and positive standard deviation, standardize with z = (x - mean) / standard deviation. Use the supplied reference values or the labeled calculator method. Round probabilities to four decimal places and percentile cutoffs to two decimal places.

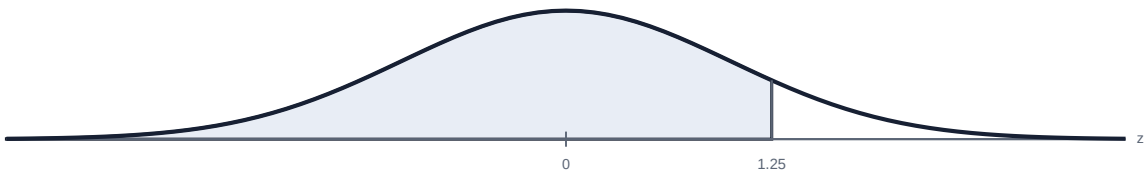
3. **X is normal with mean 50 and standard deviation 4. Find cutoff c such that P(X <= c) = 0.3. Round c to two decimal places.**

Provided inverse-normal value: Phi^-1(0.3) = -0.524400.



4. **X is normal with mean 0 and standard deviation 1. Find P(X < 1.25).**

Provided normal-CDF value: Phi(1.25) = 0.894350220.



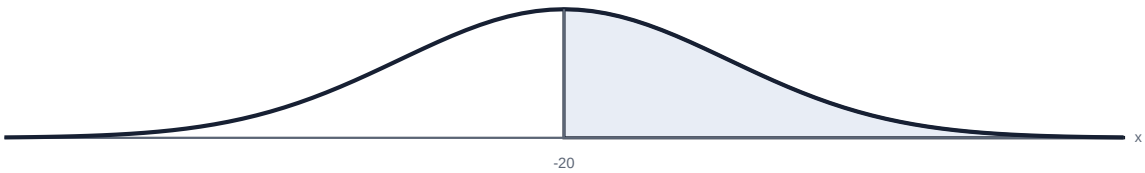
Name _____ Score _____ Teacher _____ Date _____

Normal Distribution

For X normally distributed with the stated mean and positive standard deviation, standardize with z = (x - mean) / standard deviation. Use the supplied reference values or the labeled calculator method. Round probabilities to four decimal places and percentile cutoffs to two decimal places.

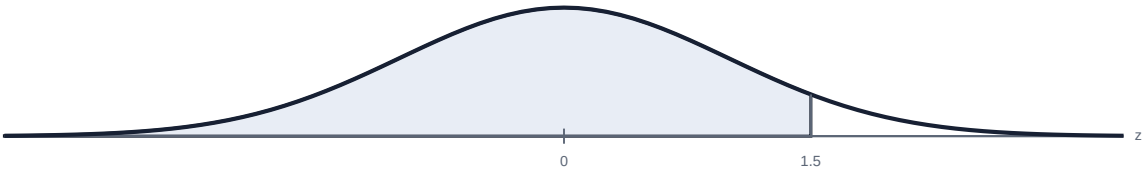
5. **X is normal with mean -20 and standard deviation 4. Find P(X > -20).**

Provided normal-CDF value: Phi(0) = 0.499999985.



6. **X is normal with mean 0 and standard deviation 1. Find P(X < 1.5).**

Provided normal-CDF value: Phi(1.5) = 0.933192798.



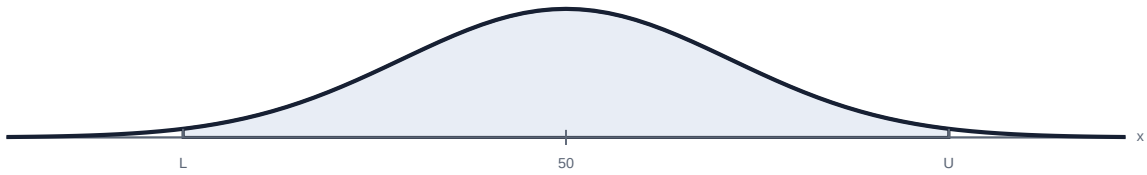
Name _____ Score _____ Teacher _____ Date _____

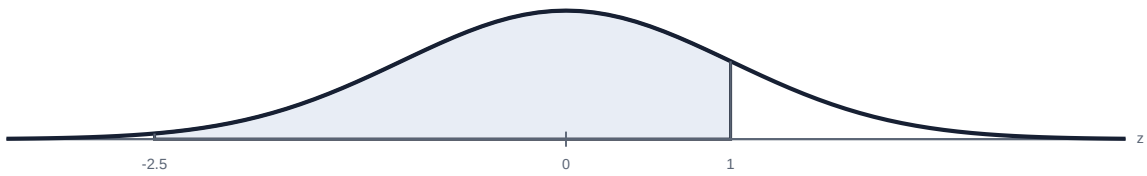
Normal Distribution

For X normally distributed with the stated mean and positive standard deviation, standardize with z = (x - mean) / standard deviation. Use the supplied reference values or the labeled calculator method. Round probabilities to four decimal places and percentile cutoffs to two decimal places.

7. **X is normal with mean 50 and standard deviation 2. Find the symmetric central interval [L, U] containing probability 0.98. Round endpoints to two decimal places.**

Provided inverse-normal value: Phi^-1(0.99) = 2.326348; symmetry gives the lower z value.



8. **X is normal with mean 0 and standard deviation 1. Find P(-2.5 < X < 1).**

Provided normal-CDF values: Phi(-2.5) = 0.006209665; Phi(1) = 0.841344739.