

DSO101 Lesson 5 The Normal Distribution Study Guide

If you don't love math, you can use the [Probability Calculator](#) for an online Normal Probability calculator used for Questions 1 – 3, 7, 8, 9, 10, 11, 12

[HyperStat Online Home Page](#)



- ☒ Area from a value (Use to compute p from Z)
☐ Value from an area (Use to compute Z for confidence intervals)

Specify Parameters:

Mean

SD

☐ Above

☐ Below

☒ Between and

☐ Outside and

Results:

Area (probability)

Z-Score Calculator: Use [this website](#) to calculate z-scores easily for question 4 & 5. Remember you need a mu value, sigma value and x value to calculate the Z score.

Calculator.net
home / math / z-score calculator
Z-score Calculator
Use this calculator to compute the z-score of a normal distribution.
Result
Z-score = -2.3
Probability of $x < 57$: 0.010724
Probability of $x > 57$: 0.98928
Probability of $57 < x < 80$: 0.48928
Steps:
$$\begin{aligned} Z \text{ score} &= \frac{x - \mu}{\sigma} \\ &= \frac{57 - 80}{10} \\ &= -2.3 \end{aligned}$$

P-value from Z-Table:
 $P(x < 57) = 0.010724$
 $P(x > 57) = 1 - P(x < 57) = 0.98928$
 $P(57 < x < 80) = 0.5 - P(x < 57) = 0.48928$

Raw Score, x

57

Population Mean, μ

80

Standard Deviation, σ

10

Calculate

Clear

Question 6 will require you to solve for the sigma:

If $x = 270$, $\mu = 225$, and the z-score is 1.5, what is sigma? $1.5 = (270 - 225) / \text{sigma}$.

Hint: The mean of a child distribution will always be the same as the parent, but the standard deviation will be smaller.