

# Standard Normal Distribution(z) Table

Standard normal distribution table is used to find the areas and probabilities associated with z-score. **z score** is the distance along the horizontal scale of the normal distribution which is the leftmost column and top row of standard normal (z) distribution table. The **area** under the normal curve refer to the values in the body of the standard normal (z) distribution table.

## How to use standard normal distribution table

Step 1: Compute the z-score based on the given data.  
 Step 2: Refer the standard normal distribution table and locate the row that shows the number and the first number after the decimal point of your z-score in the leftmost column of the table.

Step 3: Locate the designated column that shows the second digit after the decimal point of your z-score in the topmost row of the table.

Step 4: Find the area corresponds to your z-score by intersecting the row and column from step 2 and 3.

E.g. 1. Finding the area corresponding to the  $z = -3.17$  in the standard normal distribution table.

Solution: The z-score is negative, so it is located on the left half of the normal distribution graph. To find the  $P(z < -3.17)$ , first look for the row for -3.1 and column for .07 and then intersect the row and column to know the corresponding area, 0.0008 (Fig 1).

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	0.09
-3.50 and lower	.0001									
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014

Fig 1: Partial standard normal (z) distribution table showing the cumulative area for negative z-scores. The blue rectangles represent the intersection of row and column for z-score = -3.17.

The standard normal (z) distribution table is divided into two sections: negative z- scores and positive z- scores (Fig 2 and Table 1).



Fig. 2. The shaded region in the graph represents the table entry for (a) negative z-scores and (b) positive z-scores.

Table. 1. Table showing areas of standard normal distribution (a) negative z-scores and (b) positive scores. The table given are partial tables.

(a) z	.00	.01	.02	.03	.04	.05	.06	.07	.08	0.09
-3.50 and lower	.0001									
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014

(b) z	.00	.01	.02	.03	.04	.05	.06	.07	.08	0.09
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964