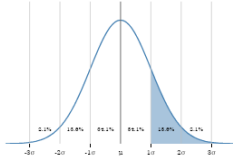


Determine percentiles from normal distributions

1

What percentage of the data lies more than 1 standard deviation above the mean ($+1\sigma$) in this normal curve?



- A 15.9% B 50% C 2.3% D 84.1%

2

above $+1\sigma$

- | | |
|------------|------------|
| A
15.9% | B
84.1% |
| C
2.3% | D
50% |

3

A height has a z-score of 2.5.

- A 2.5 standard deviations above the mean
B 3.5 standard deviations above the mean
C 1.5 standard deviations above the mean
D 2.5 standard deviations below the mean

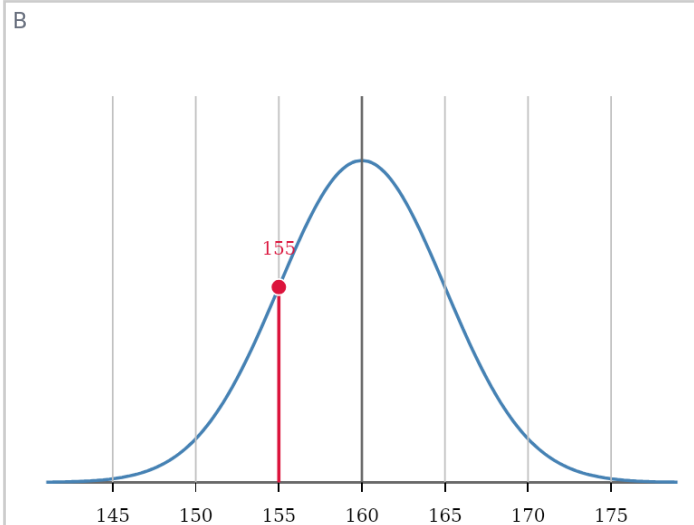
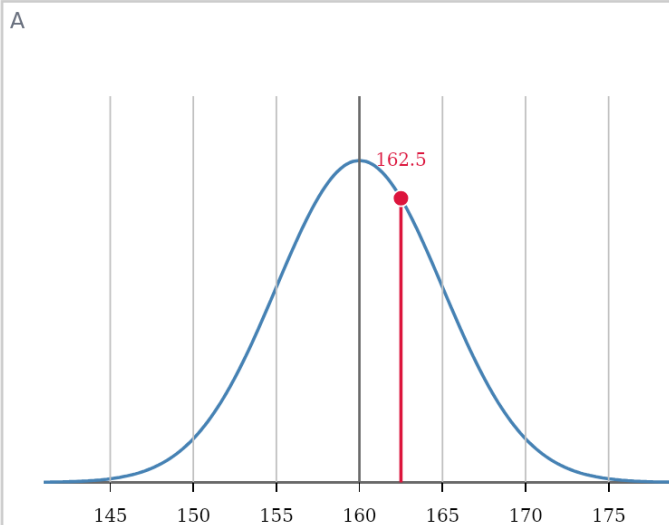
4

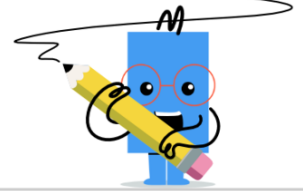
A height of 158 cm comes from data with mean 160 cm and standard deviation 5 cm. Use $z = (x - \text{mean}) / \text{standard deviation}$.

- | | |
|-----------|-----------|
| A
-0.4 | B
-0.9 |
| C
0.4 | D
0.6 |

5

The heights are normally distributed with mean 160 cm and standard deviation 5 cm. Z-score of -1.0.





Determine percentiles from normal distributions

6

A height has a z-score of 2. Using the empirical rule, what percentage of heights is above it?

A
84.1%

B
0.2%

C
2.3%

D
97.7%

7

Read the z-table value.

A exam mark has a z-score of 0.55.

Read $P(Z \leq 0.55)$ from the z-table.

z	0.03	0.04	0.05
0.5	0.7019	0.7054	0.7088
0.6	0.7357	0.7389	0.7422
0.7	0.7673	0.7704	0.7734

A 0.7054

B 0.7357

C 0.7019

D 0.7088

8

A exam mark has a z-score of 1.81. The z-table value for this z-score is 0.9649. What percentage of exam marks is above it?

A
3.51%

B
0.04%

C
0.96%

D
96.49%

9

Find the percentage.

A test score has a z-score of 1.37.

What percentage of test scores is below it?

z	0.07	0.08	0.09
1.1	0.8790	0.8810	0.8830
1.2	0.8980	0.8997	0.9015
1.3	0.9147	0.9162	0.9177

A 8.53%

B 91.47%

C 0.91%

D 0.09%

10

Read the z-table value.

A reaction time of 271.6 ms has mean 250 ms, SD 10 ms.

Find the z-score, then read its z-table value.

z	0.05	0.06	0.07
2.0	0.9798	0.9803	0.9808
2.1	0.9842	0.9846	0.9850
2.2	0.9878	0.9881	0.9884

A 0.9798

B 0.9846

C 0.9803

D 0.9808

11

Find the percentage.

A exam mark of 146.6 has mean 100, SD 20.

What percentage of exam marks is below it?

z	0.01	0.02	0.03
2.3	0.9896	0.9898	0.9901
2.4	0.9920	0.9922	0.9925
2.5	0.9940	0.9941	0.9943

A 99.01%

B 0.01%

C 0.99%

D 50.00%

12

A exam mark has a z-score of -2.3 in data with mean 110 and standard deviation 10.

A
133

B
87

C
107.7

D
97

13

test scores have mean 78 and standard deviation 5. For the top 30%, the z-table value $P(Z \leq -0.52) = 0.6985$. What is the cutoff test score?

A
78.5

B
78

C
80.6

D
75.4