



Calculate and interpret z-scores

1

An exam mark is above the mean.

A

Negative

B

Positive

2

A test score of 78 comes from data with mean 72 and standard deviation 10.

A

Negative

B

Positive

3

A test score of 66 comes from data with mean 70 and standard deviation 5. Use $z = (x - \text{mean}) / \text{standard deviation}$.

A

Negative

B

Positive

4

A test score has a positive z-score.

A

Below the mean

B

Above the mean

5

A reaction time has a z-score of 0.4.

A

Below the mean

B

Above the mean

6

An exam mark has a positive z-score. Mean 120, standard deviation 10.

A

110

B

130

7

A reaction time is 2.5 standard deviations below the mean.

A

2.5

B

-3.0

C

-2.5

D

-2.0

8

A height has a z-score of 2.2.

A

2.2 standard deviations above the mean

B

2.2 standard deviations below the mean

C

1.2 standard deviations above the mean

D

3.2 standard deviations above the mean



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A test score has a z-score of 1.0.

- A right around the mean
- B far above the mean
- C moderately above the mean
- D moderately below the mean

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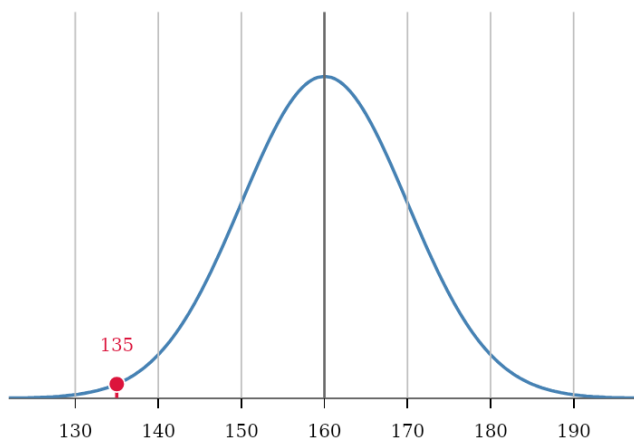
A height has a z-score of -0.3 in data with mean 175 cm and standard deviation 10 cm.

- | | |
|---------------|-------------|
| A
174.7 cm | B
182 cm |
| C
172 cm | D
178 cm |

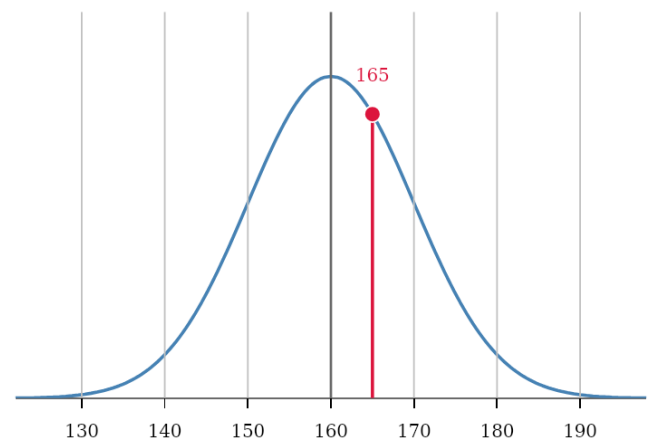
11

The heights are normally distributed with mean 160 cm and standard deviation 10 cm. Z-score of -2.5.

A



B



12

A reaction time has a z-score of -1. Using the empirical rule, what percentage of reaction times is below it?

- | | |
|------------|------------|
| A
50.0% | B
2.3% |
| C
15.9% | D
84.1% |

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An 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
0.04% | B
96.49% |
| C
0.96% | D
3.51% |



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Find the percentage.

A exam mark has a z-score of 1.50.

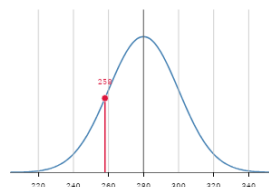
What percentage of exam marks is above it?

z	0.00	0.01	0.02
1.5	0.9332	0.9345	0.9357
1.6	0.9452	0.9463	0.9474
1.7	0.9554	0.9564	0.9573

- A 0.93% B 6.68% C 0.07% D 93.32%

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Mean 280 ms, standard deviation 20 ms. Find the z-score of the marked point.



- A -1.0 B 1.1 C -1.1 D -1.6

16

The adult heights in centimetres are normally distributed with a mean of 170 and a standard deviation of 10.

- A 50% B 15.9%
C 84.1% D 97.7%

17A exam mark of 90 comes from data with mean 100 and standard deviation 10. Use $z = (x - \text{mean}) / \text{standard deviation}$.

- A -1.0 B -1.5
C -0.7 D 1.0

18

A exam mark of 60 comes from data with mean 100 and standard deviation 20.

- A 2.0 B -2.5
C -2.0 D -1.7

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Read the z-table value.

A reaction time of 321.2 ms has mean 280 ms, SD 20 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 0.9808 B 0.9803 C 0.9842 D 0.9798

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Set A had the better performance (the higher z-score). Which pair of results fits?

- A Set A Set B
Mean : 110 Mean : 100
SD : 20 SD : 10
Value : 154 Value : 80
- B Set A Set B
Mean : 110 Mean : 100
SD : 20 SD : 10
Value : 70 Value : 122