



Probability and Statistics - Variance and Standard Deviation - Intro

1 What is the median of this data set?

25, 38, 41, 45, 46, 55, 57, 60, 62, 93

A	50.5	B	60
C	41	D	68

2 What is the median of this data set?

97, 57, 70, 38, 51, 43, 58, 62

A	66	B	56.5
C	57.5	D	47

3 List the values in the lower half of this data set.

26, 33, 37, 51, 52, 56, 59, 96

A	26, 33, 37, 51, 52
B	26, 33, 37, 51
C	26, 33, 37
D	52, 56, 59, 96

4 List the values in the lower half of this data set.

43, 58, 61, 97, 30, 51, 68, 63, 53

A	30, 43, 51
B	30, 43, 51, 53, 58
C	61, 63, 68, 97
D	30, 43, 51, 53

5 What is the third quartile (Q3) of this data set? The median of this data set is 48.

33, 41, 46, 47, 48, 50, 59, 63, 92

A	61	B	52.25
C	48	D	43.5

6 What is the first quartile (Q1) of this data set? The median of this data set is 55.

65, 92, 64, 48, 48, 50, 60, 31, 62, 37

A	55	B	48
C	56	D	64

7 What is the median (Q2) of this data set?

25, 35, 47, 48, 51, 53, 58, 59, 59, 70

A	47	B	53
C	52	D	59

8 What is the third quartile (Q3) of this data set?

56, 37, 8, 45, 61, 39, 41, 33

A	50.5	B	42.75
C	40	D	35



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- 9** What is the interquartile range (IQR) of this data set?
25, 32, 34, 36, 38, 46, 52, 76

A	82	B	49
C	16	D	51

- 10** What is the interquartile range (IQR) of this data set?
38, 49, 30, 43, 40, 32, 67, 32, 54, 2

A	65	B	49
C	17	D	81

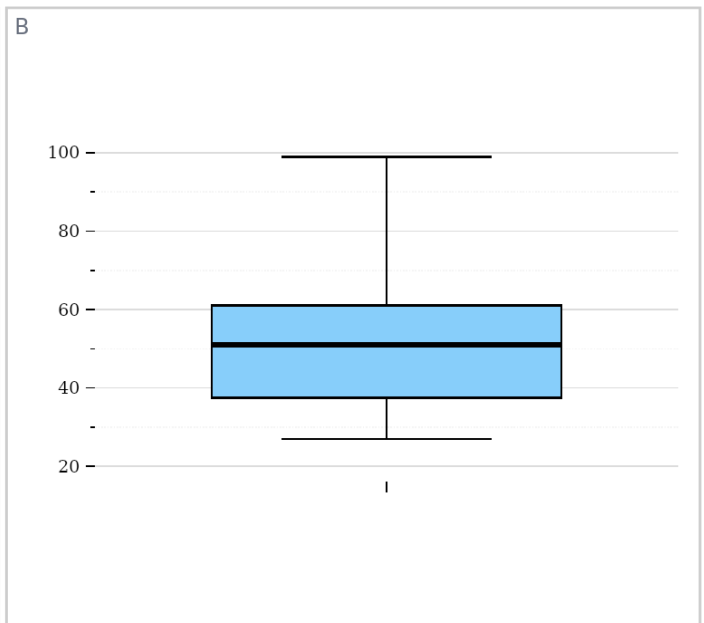
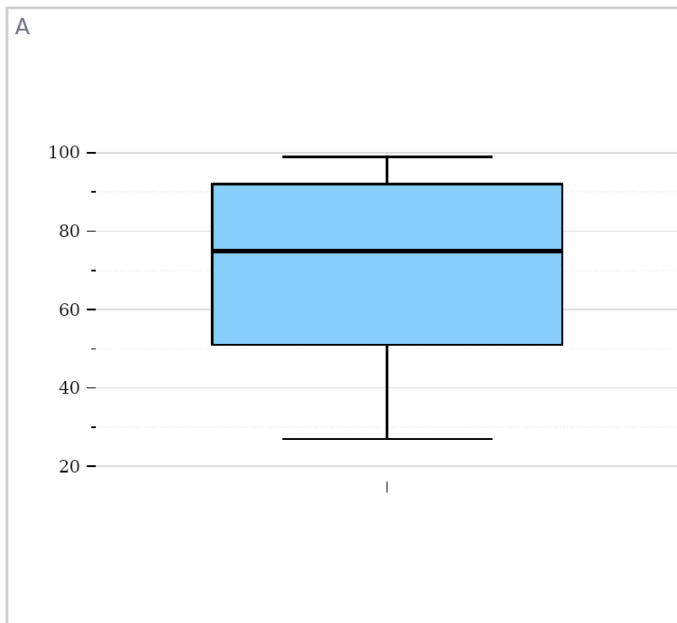
- 11** What is the lower outlier boundary for this data set?
11, 41, 48, 49, 49, 60, 64, 65, 70

A	30	B	14.5
C	24.5	D	94.5

- 12** What is the lower outlier boundary for this data set?
9, 67, 55, 40, 37, 55, 40, 47, 43

A	13.75	B	79.75
C	22	D	24.75

- 13** Which box plot represents this data set?
27, 36, 39, 49, 51, 52, 60, 62, 99



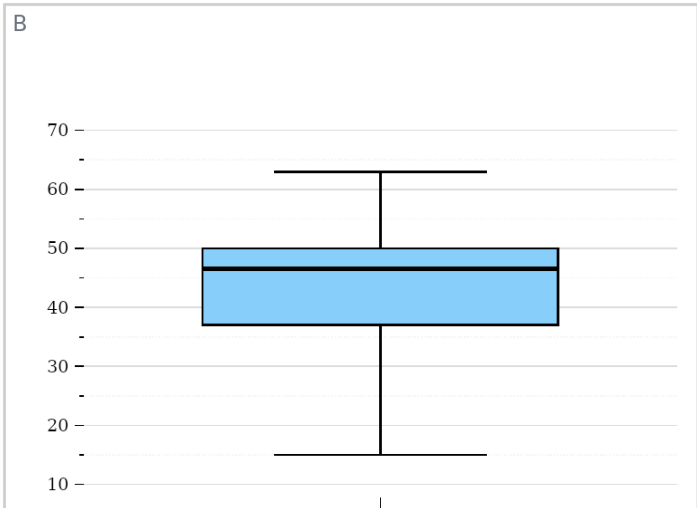
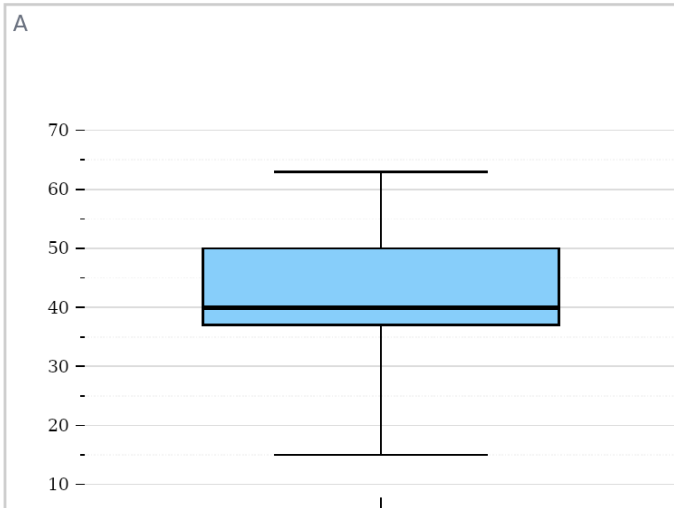


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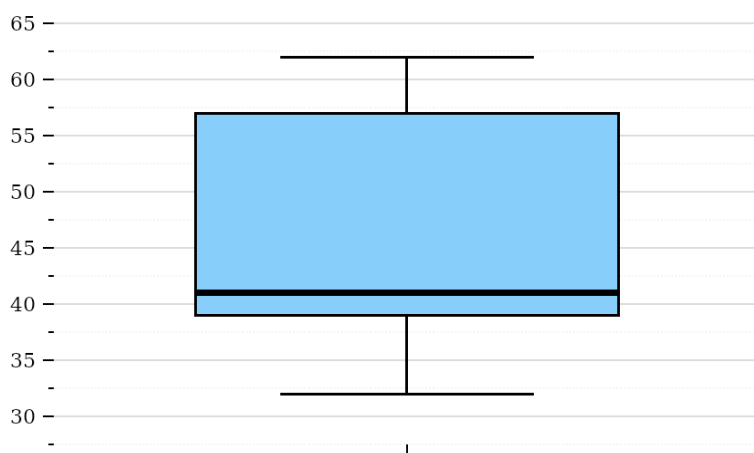


14 Which box plot represents this data set?

45, 35, 49, 37, 15, 47, 50, 63, 53, 46



15 Would a value of 7 be an outlier for this box plot?



A

No

B

Yes



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- 16** Is the value 93 an outlier in this data set?
29, 34, 38, 40, 48, 55, 56, 59, 60, 93

A

Yes

B

No

- 17** Would a value of 5 be an outlier for this data set?
Median = 34, $Q_1 = 27$, $Q_3 = 39$

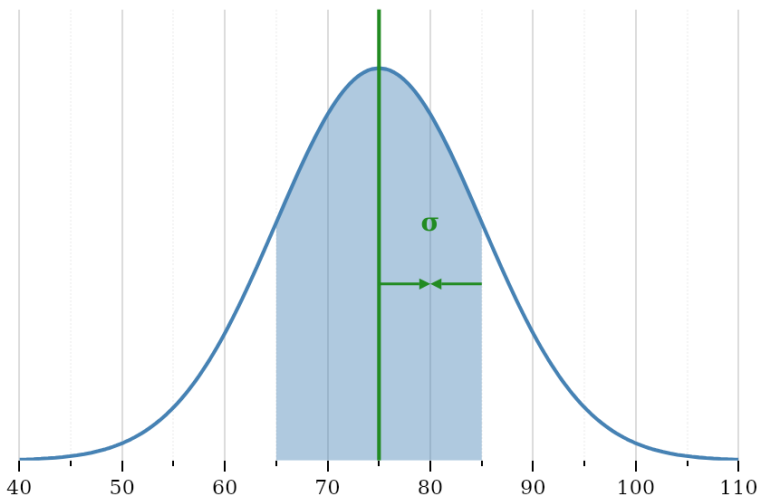
A

No

B

Yes

- 18** What is the mean of this bell curve?



A

10

B

85

C

65

D

75

- 19** What is the population variance of this data set?

54, 58, 56, 52, 55
mean = 55

A

4

B

5

C

3

D

2

- 20** What is the standard deviation of this data set?

78, 72, 84, 66, 75
variance = 36

A

36

B

5

C

6

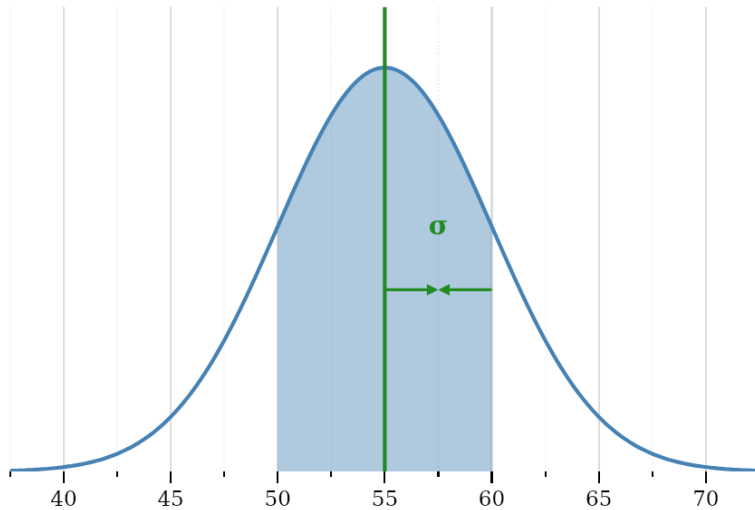
D

7



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21 What is the standard deviation of this bell curve?



A

10

B

55

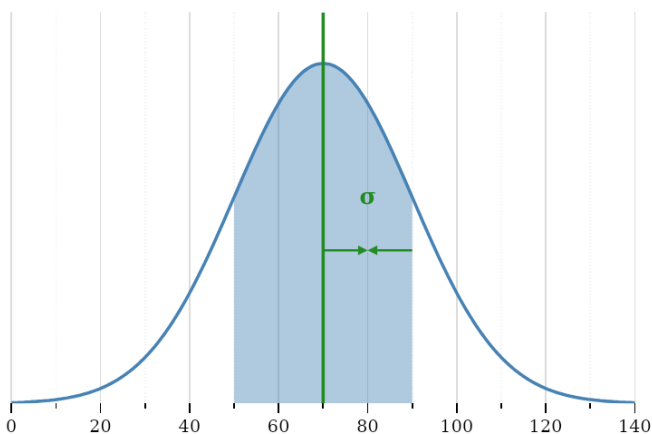
C

5

D

1

22 What are the mean and standard deviation of this bell curve?



A

Mean = 20, SD = 70

B

Mean = 70, SD = 5

C

Mean = 70, SD = 20

D

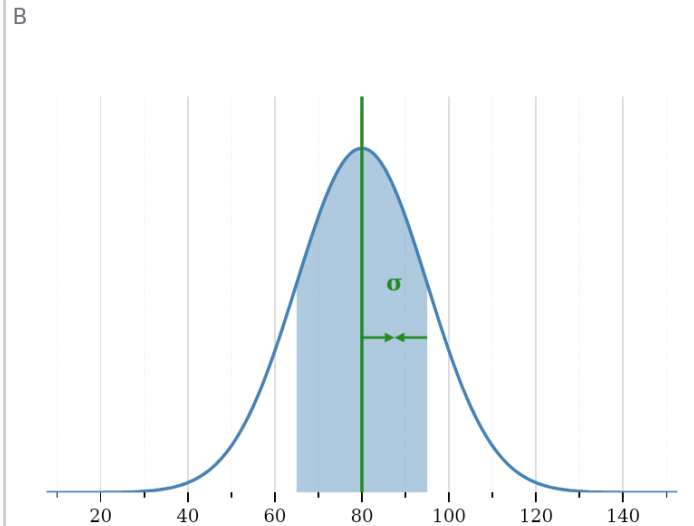
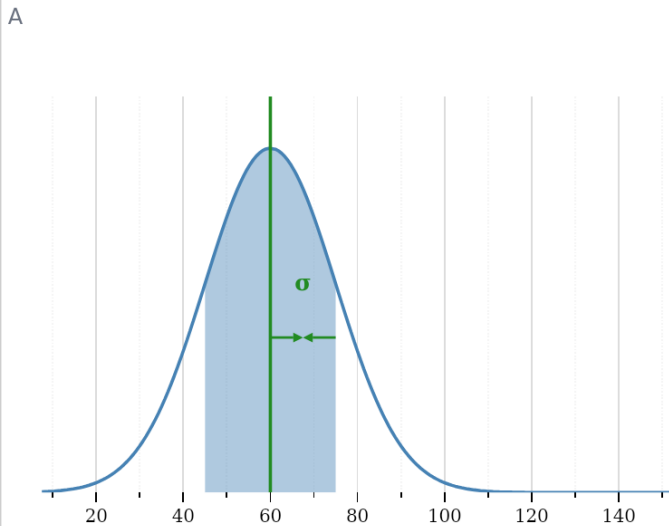
Mean = 80, SD = 20



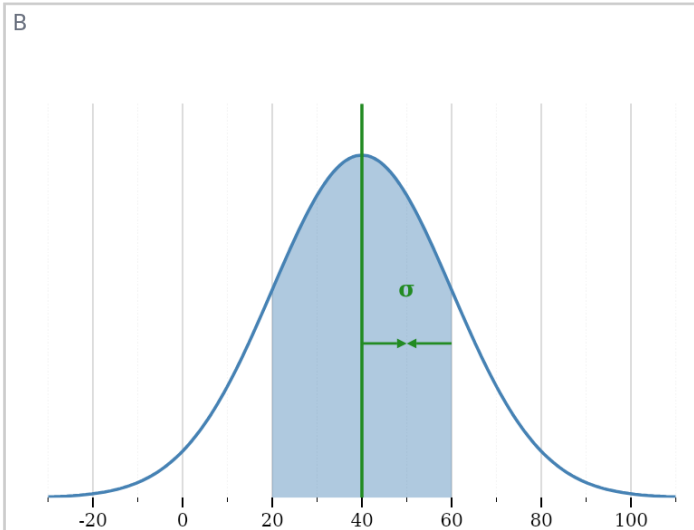
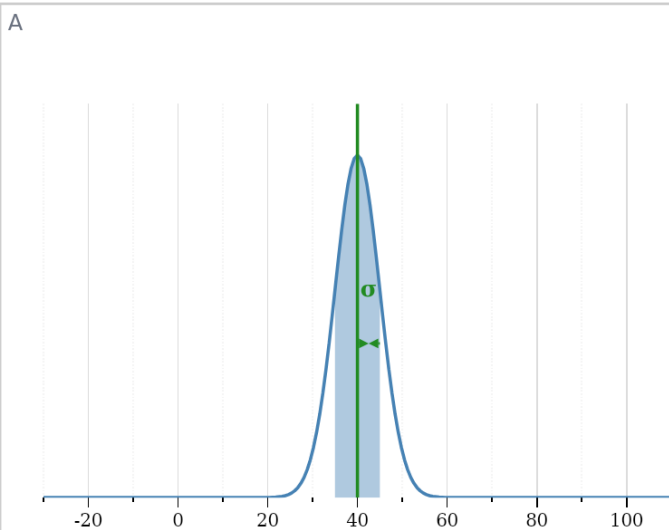
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23 Which bell curve matches these values?
mean = 80



24 Which bell curve matches these values?
standard deviation = 5





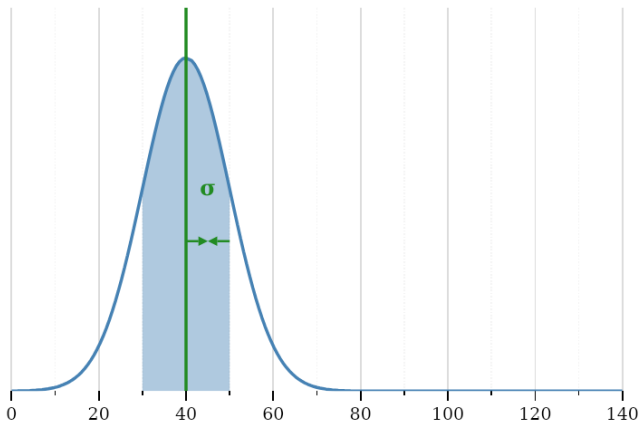
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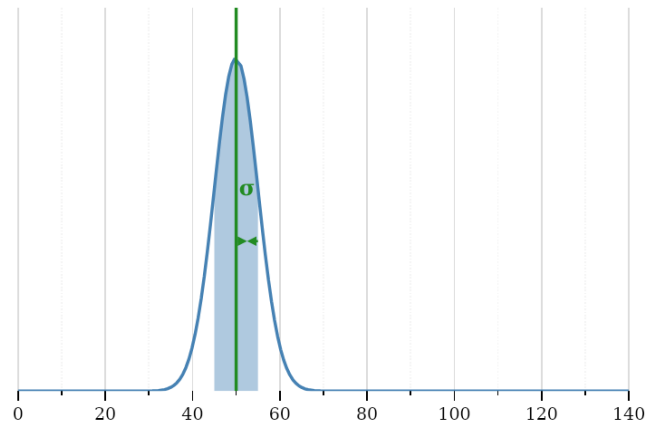
25 Which bell curve matches these values?

mean = 50, standard deviation = 5

A



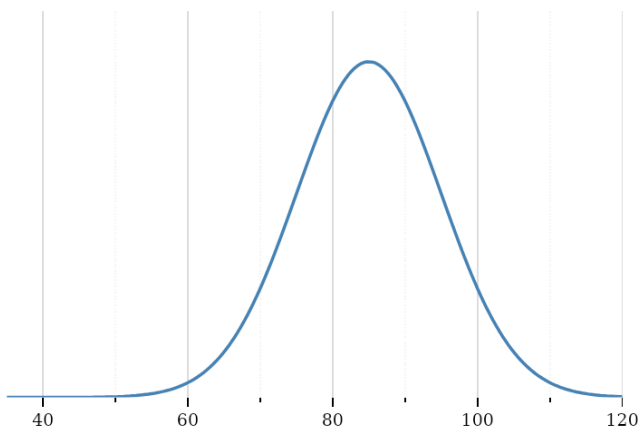
B



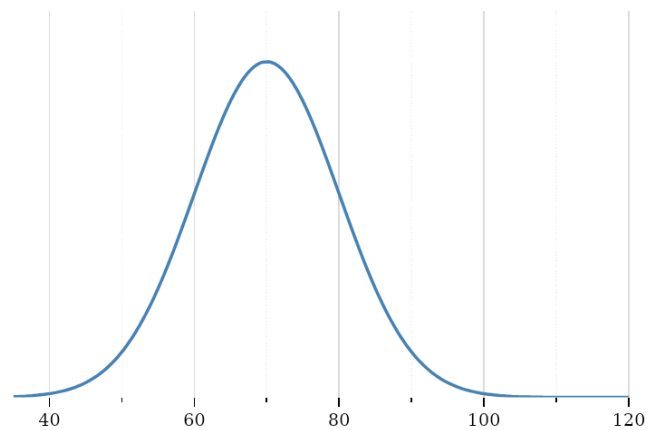
26 Which bell curve has a lower mean?

Which bell curve has a lower mean?

A



B

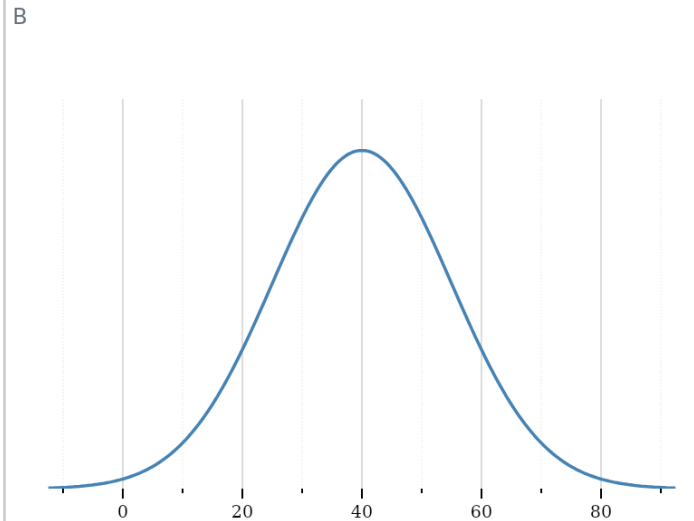
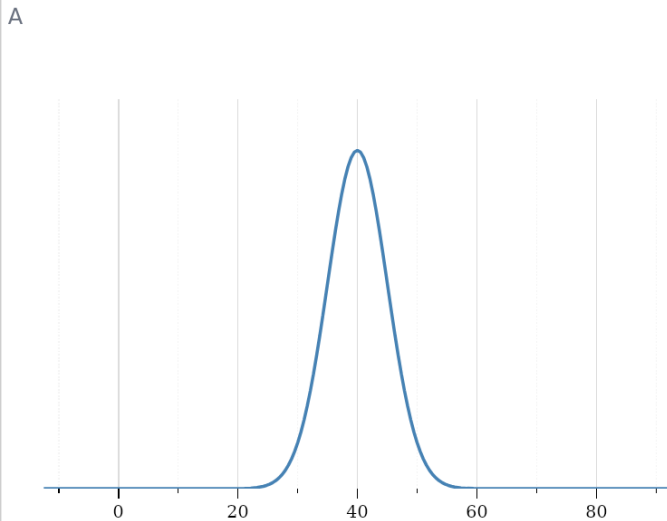




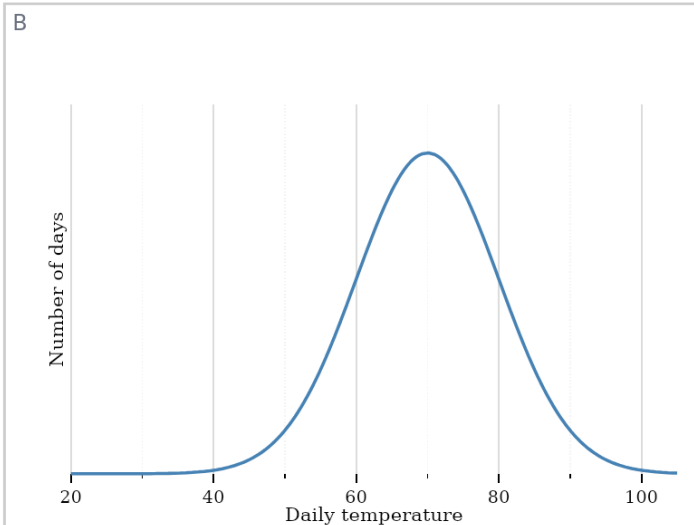
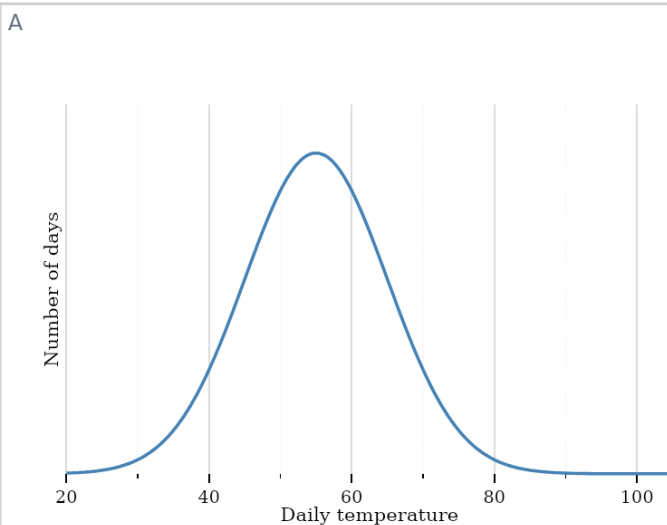
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27 Which bell curve has a lower standard deviation?
Which bell curve has a lower standard deviation?



28 Which city has a higher average temperature?
Which city has a higher average temperature?

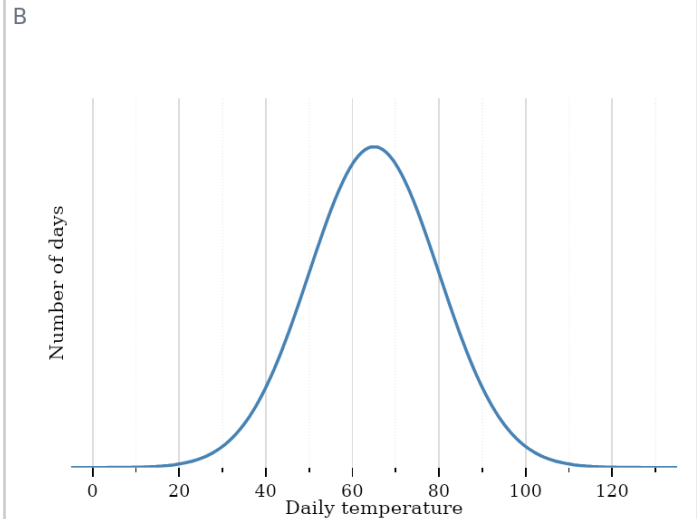
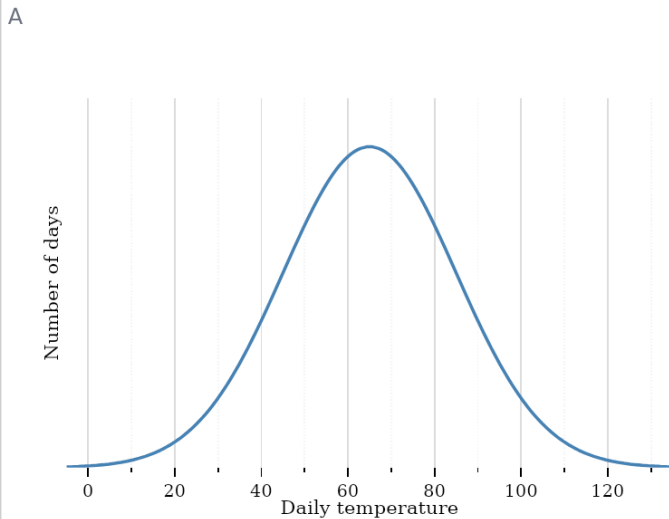




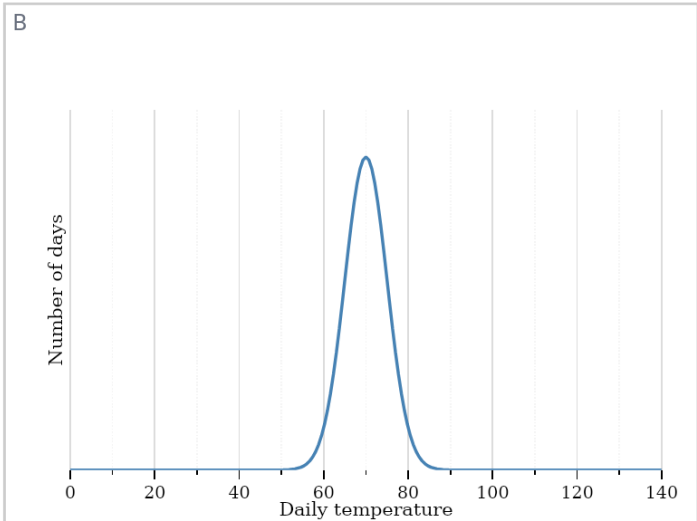
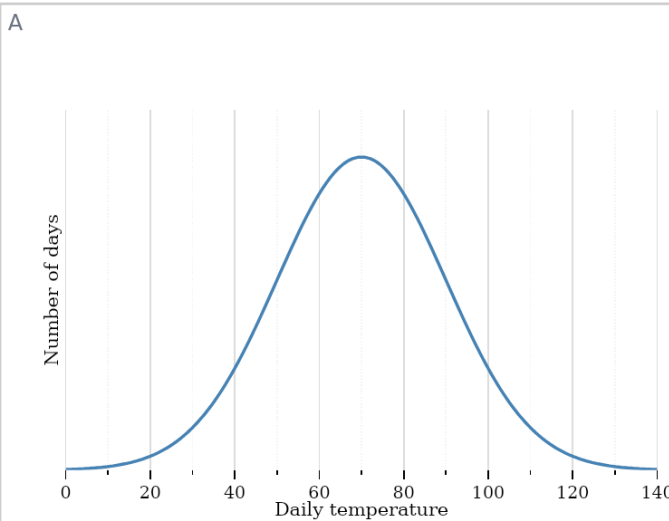
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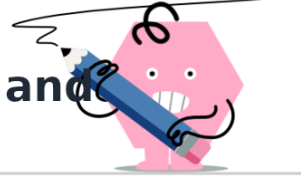


29 Which city has less consistent temperatures?
Which city has less consistent temperatures?



30 Which city has more extreme temperatures?
Which city has more extreme temperatures?





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31 What is the standard deviation of this data set?

37, 34, 33, 31, 35
mean = 34

A	1	B	4
C	2	D	3

32 What is the population variance of this data set?

36, 40, 32, 34, 28

A	16	B	4
C	20	D	3

33 What is the standard deviation of this data set?

69, 57, 63, 51, 60

A	36	B	6
C	5	D	7

34 Which class has a lower mean?

Class A : 66, 68, 62, 64, 65

Class B : 84, 78, 72, 75, 66

A	Class A	B	Class B
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35 Which city has a lower variance?

City A : 29, 23, 20, 11, 17

City B : 27, 29, 33, 31, 30

A	City A	B	City B
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36 Which class has a higher standard deviation?

Class A : 54, 58, 56, 52, 55

Class B : 45, 48, 54, 42, 36

A	Class B	B	Class A
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37 Which player has more points per game on average?

Player A : 23, 21, 25, 27, 24

Player B : 43, 37, 25, 34, 31

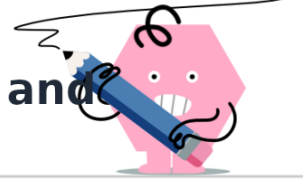
A	Player B	B	Player A
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38 Which player has more consistent scoring?

Player A : 27, 24, 21, 23, 25

Player B : 34, 25, 31, 43, 37

A	Player A	B	Player B
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39 Which city has a lower average temperature?

City A : mean = 65, standard deviation = 10

City B : mean = 50, standard deviation = 10

A

City B

B

City A

40 Which player has less consistent scoring?

Player A : mean = 80, standard deviation = 10

Player B : mean = 80, standard deviation = 20

A

Player B

B

Player A

41 Which city has fewer extreme temperatures?

City A : mean = 80, standard deviation = 5

City B : mean = 80, standard deviation = 15

A

City B

B

City A

42 What percentage of the data lies between $+2\sigma$ and $+3\sigma$ in a normal distribution?

$+2\sigma$ to $+3\sigma$

A

2.1%

B

15.7%

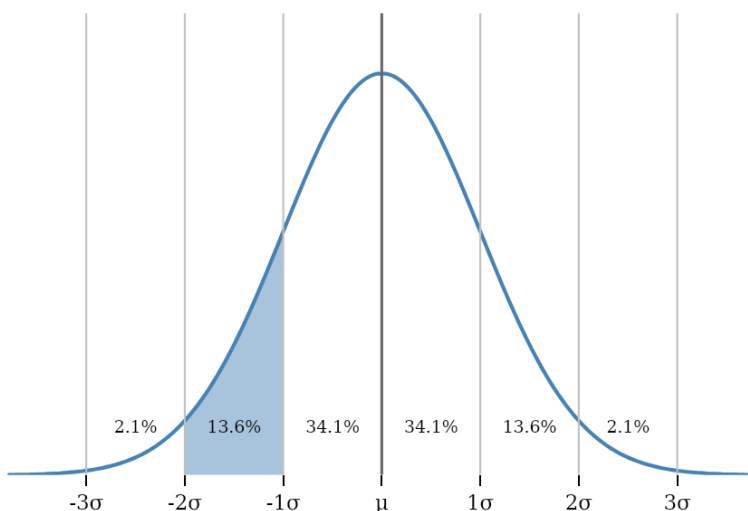
C

97.9%

D

2.3%

43 What percentage of the data lies between 2 standard deviations below the mean (-2σ) and 1 standard deviation below the mean (-1σ) in this normal curve?



A

13.6%

B

15.7%

C

86.4%

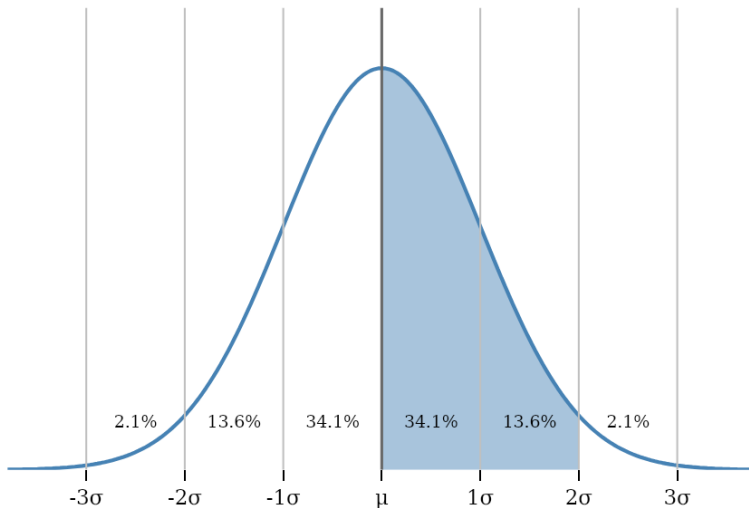
D

47.7%



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44 What percentage of the data lies between the mean and 2 standard deviations above the mean ($+2\sigma$) in this normal curve?



A

52.3%

B

13.6%

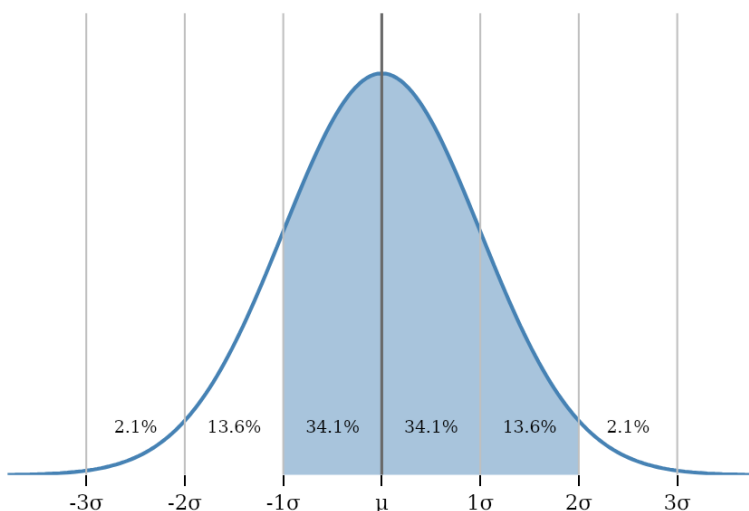
C

81.8%

D

47.7%

45 What percentage of the data lies between 1 standard deviation below the mean (-1σ) and 2 standard deviations above the mean ($+2\sigma$) in this normal curve?



A

18.2%

B

81.8%

C

47.7%

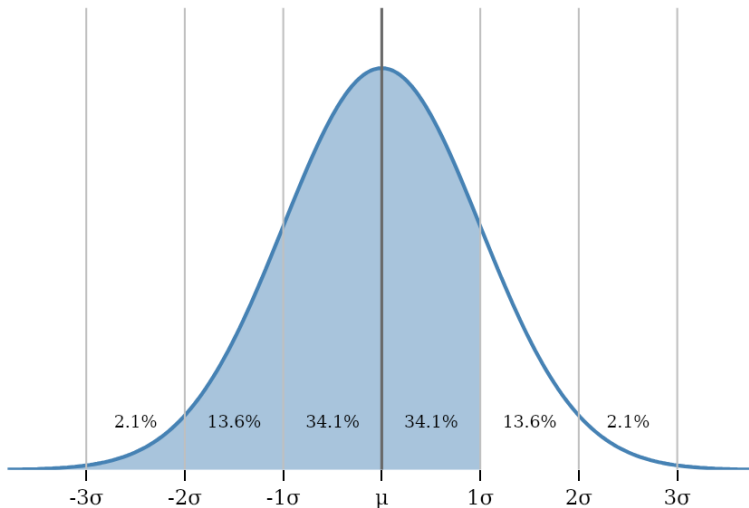
D

95.4%



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



A

83.9%

B

15.9%

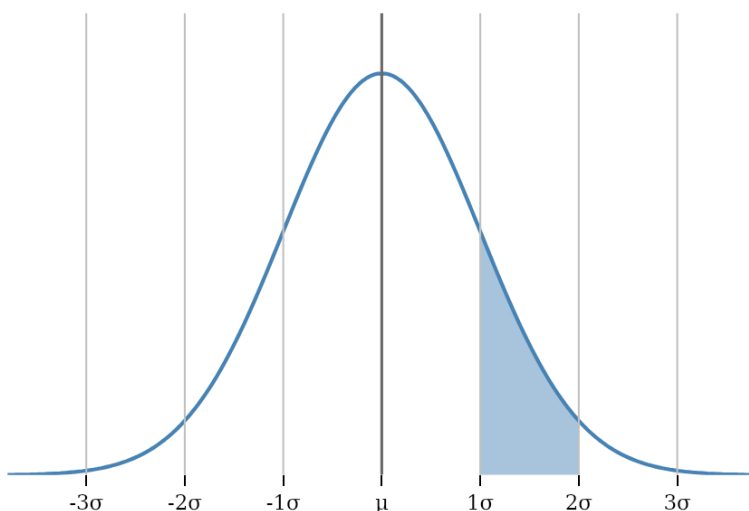
C

50%

D

84.1%

47 What percentage of the data lies between 1 standard deviation above the mean ($+1\sigma$) and 2 standard deviations above the mean ($+2\sigma$) in this normal curve?



A

86.4%

B

13.6%

C

15.7%

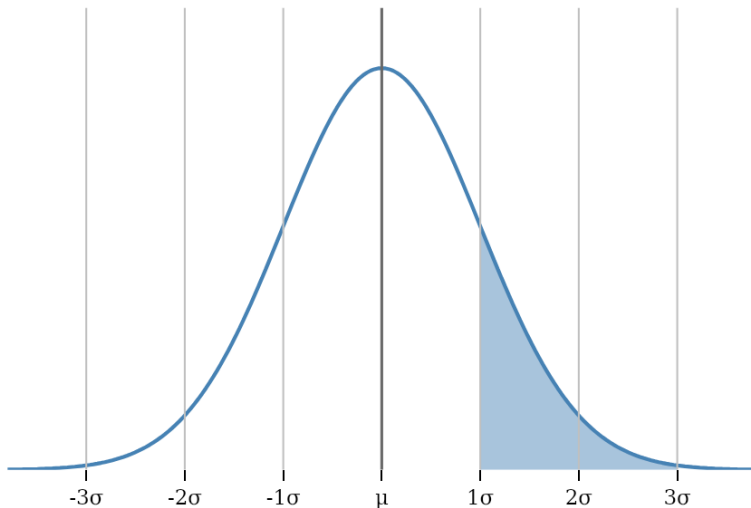
D

47.7%



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48 What percentage of the data lies between 1 standard deviation above the mean ($+1\sigma$) and 3 standard deviations above the mean ($+3\sigma$) in this normal curve?



A

2.1%

B

84.3%

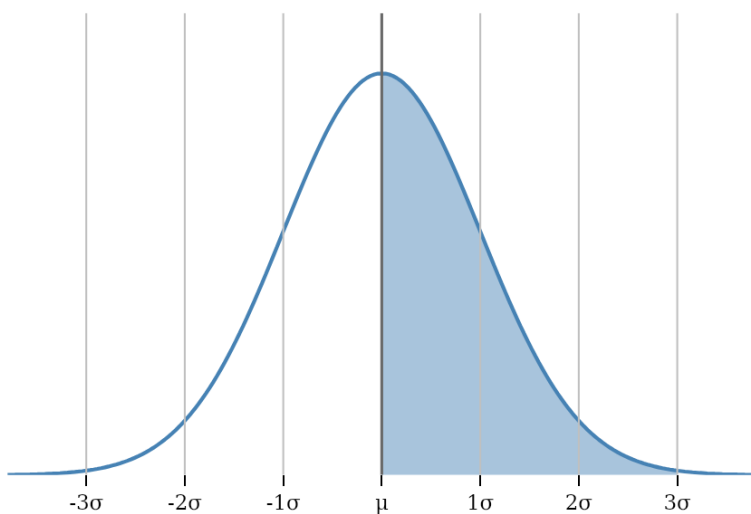
C

49.8%

D

15.7%

49 What percentage of the data lies between the mean and 3 standard deviations above the mean ($+3\sigma$) in this normal curve?



A

49.8%

B

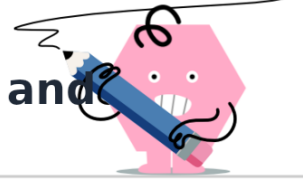
15.7%

C

50.2%

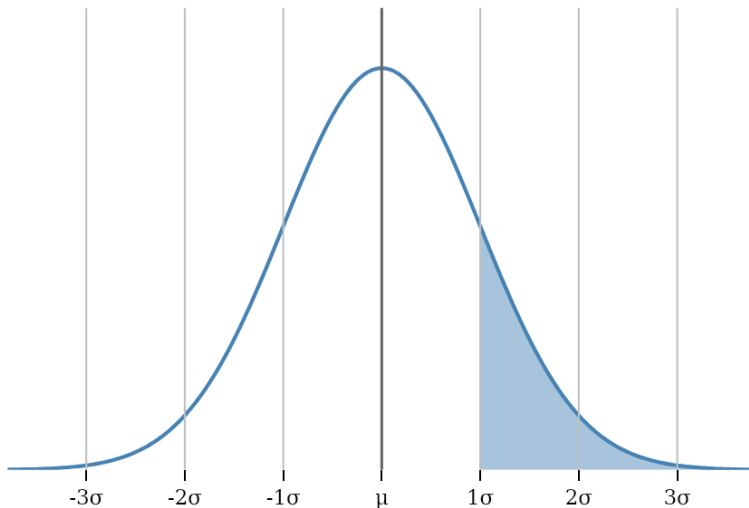
D

83.9%



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



A

84.1%

B

50%

C

2.3%

D

15.9%

51 What percentage of the data lies between $+1\sigma$ and $+3\sigma$ in a normal distribution?

$+1\sigma$ to $+3\sigma$

A

15.7%

B

2.1%

C

49.8%

D

84.3%

52 What percentage of the data lies between -2σ and $+1\sigma$ in a normal distribution?

-2σ to $+1\sigma$

A

83.9%

B

81.8%

C

18.2%

D

68.2%

53 What percentage of the data lies below -2σ in a normal distribution?

below -2σ

A

2.1%

B

2.3%

C

97.7%

D

0.2%

54 What percentage of days are between 20 and 22?

The daily high temperatures in degrees are normally distributed with a mean of 18 and a standard deviation of 2. What percentage of days are between 20 and 22?

A

86.4%

B

15.7%

C

47.7%

D

13.6%



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55 What percentage of scores are between 67 and 75?

The test scores in a large class are normally distributed with a mean of 75 and a standard deviation of 4. What percentage of scores are between 67 and 75?

- | | |
|---------|---------|
| A 47.7% | B 52.3% |
| C 49.8% | D 34.1% |

56 What percentage of batteries are between 56 and 68?

The battery lifetimes in hours are normally distributed with a mean of 60 and a standard deviation of 4. What percentage of batteries are between 56 and 68?

- | | |
|---------|---------|
| A 95.4% | B 18.2% |
| C 47.7% | D 81.8% |

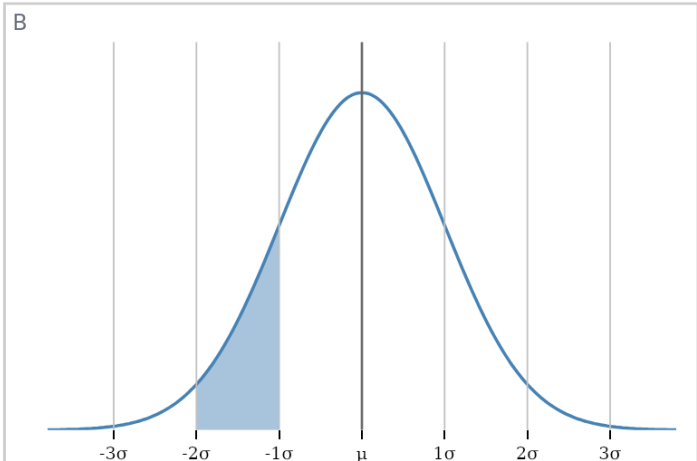
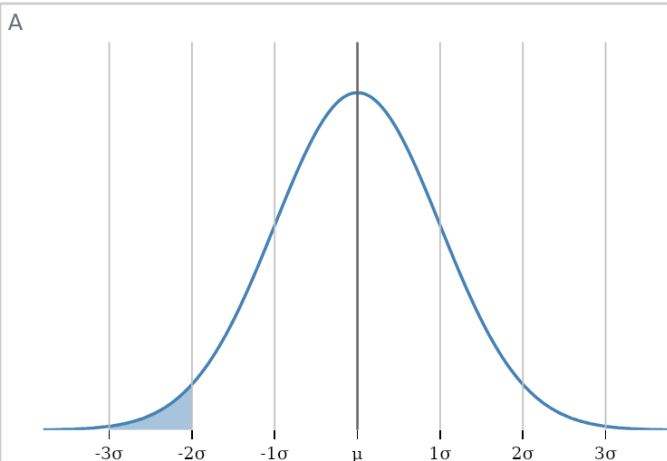
57 What percentage of days are below 16?

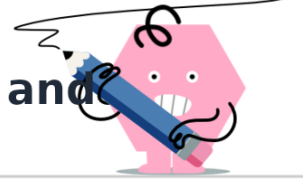
The daily high temperatures in degrees are normally distributed with a mean of 20 and a standard deviation of 4.

- | | |
|---------|---------|
| A 84.1% | B 2.3% |
| C 15.9% | D 15.7% |

58 Which normal curve has the correct region shaded for days between 14 and 16?

The daily high temperatures in degrees are normally distributed with a mean of 18 and a standard deviation of 2. Show days between 14 and 16 on the graph.

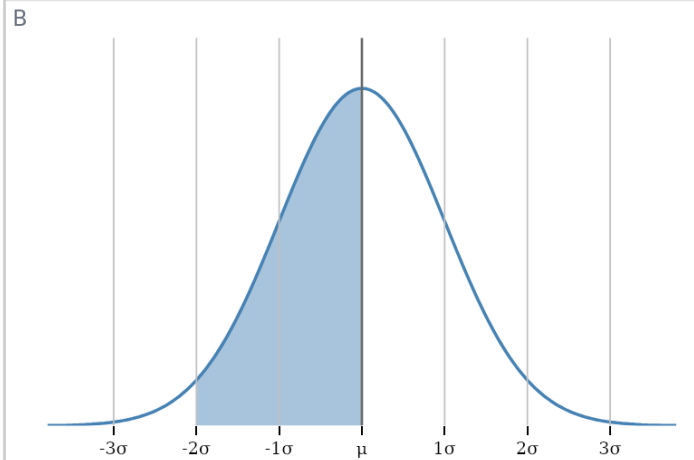
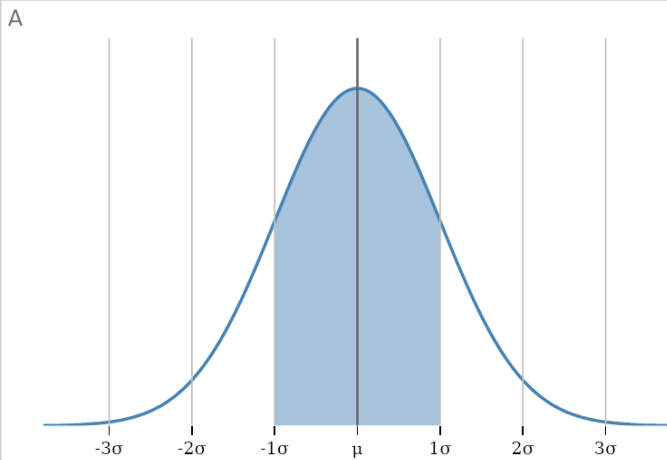




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59 Which normal curve has the correct region shaded for days between 14 and 22?

The daily high temperatures in degrees are normally distributed with a mean of 22 and a standard deviation of 4. Show days between 14 and 22 on the graph.



60 Which normal curve has the correct region shaded for scores between 50 and 80?

The test scores in a large class are normally distributed with a mean of 80 and a standard deviation of 10. Show scores between 50 and 80 on the graph.

