Congratulations! You passed!

Grade received 100% **To pass** 80% or higher

Go to next item

1. 1 / 1 point

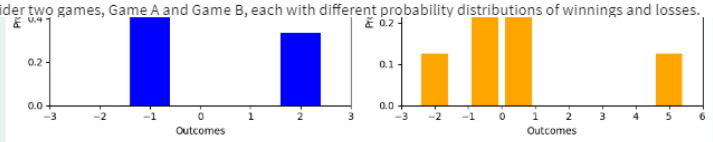
Set	Values			
1	1	5	7	9
2	−20	−10	0	10
3	100	101	102	103
4	−10	−5	0	−5

Consider the four sets of samples above. Which one has the smallest **variance?**

- 1
- 2
- 3
- 4

Correct
The variance measures how much a sample is spread. We can easily look at all the samples and check that this one has the smallest spread.

2. Consider two games, Game A and Game B, each with different probability distributions of winnings and losses. 1 / 1 point

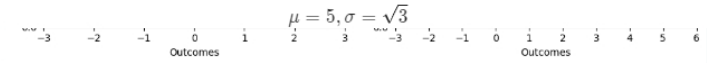


3. Consider the following **independent** random variables: 1 / 1 point

$$X \sim \text{Normal}(3, 1)$$
$$Y \sim \text{Normal}(2, 2)$$

Then $Z = X + Y \sim \text{Normal}(\mu, \sigma)$, where μ, σ are equal to:

- $\mu = \sqrt{5}, \sigma = \sqrt{3}$
- $\mu = 5, \sigma = \sqrt{5}$
- $\mu = 5, \sigma = \sqrt{3}$



3. Consider the following **independent** random variables: 1 / 1 point

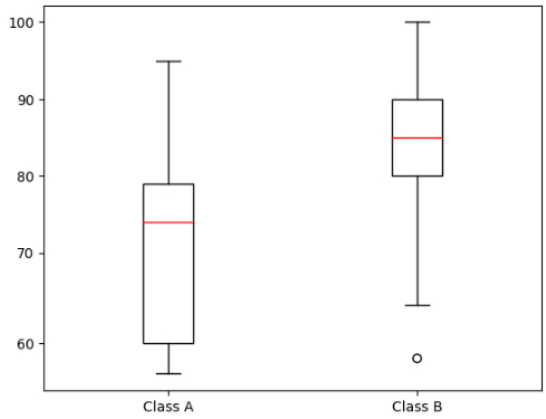
$$X \sim \text{Normal}(3, 1)$$
$$Y \sim \text{Normal}(2, 2)$$

Then $Z = X + Y \sim \text{Normal}(\mu, \sigma)$, where μ, σ are equal to:

- $\mu = \sqrt{5}, \sigma = \sqrt{3}$
- $\mu = 5, \sigma = \sqrt{5}$
- $\mu = 5, \sigma = \sqrt{3}$
- $\mu = 5, \sigma = 5$
- $\mu = 5, \sigma = 5$

Correct
Using the formula $\mu_Z = \mu_X + \mu_Y$ and $\sigma_Z = \sqrt{\sigma_X^2 + \sigma_Y^2}$ you get the result!

4. Consider the following box plot for the test scores of two classes, A and B: 1 / 1 point



Which of the following statements is true?

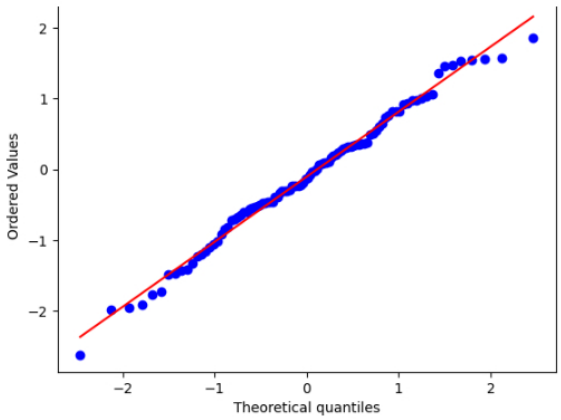
- [ ] Class A's median score is higher than Class B's median score.
- [x] Class A's interquartile range (IQR) is larger than Class B's interquartile range.

Correct
The rectangle in A is bigger than B.

- [x] Class B's median score is higher than Class A's median score.

Correct
Looking at the box plot, we can see that the median of Class A is around 75, while the median of Class B is around 85.

- [ ] Class B's interquartile range (IQR) is larger than Class A's interquartile range.



Which of the following statements is true?

- (•) The data looks normally distributed.
- ( ) The data has a lower variance than a normal distribution.
- ( ) The data has a higher variance than a normal distribution.
- ( ) The data is not normally distributed.

Correct
The QQ plot compares the observed data with the theoretical quantiles of a normal distribution. If the points lie close to the diagonal line, then the data is likely normally distributed.