

Statistics Competition 2022.

Questionnaire checking

B - Lower secondary

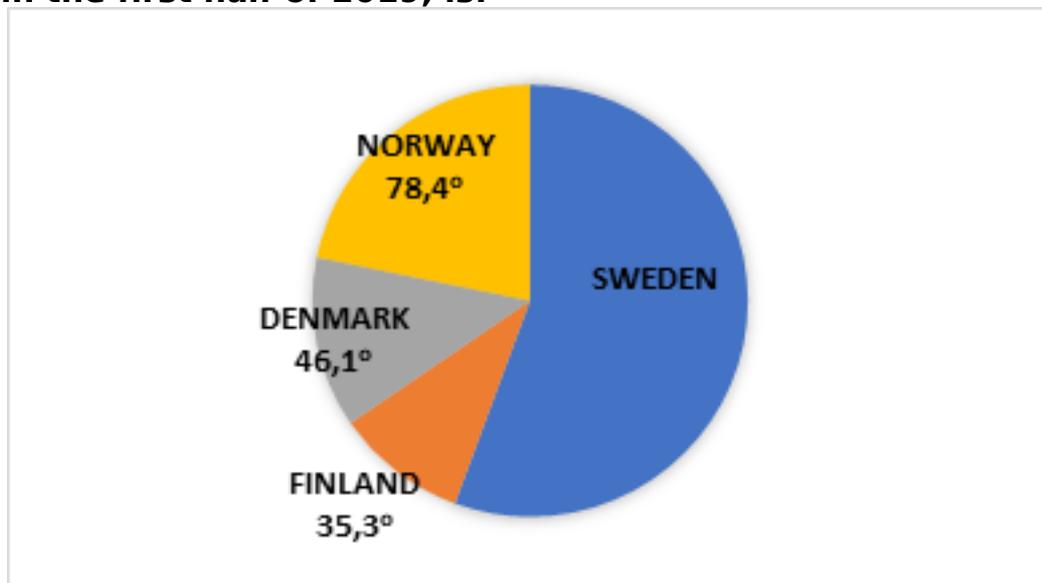
1 - Basic knowledge test

Version: 1 Language: en

1. A questionnaire was used for a survey conducted at secondary schools in Cyprus to investigate the impact of the COVID-19 pandemic on students' customs. For this purpose, a sample of 27527 students was selected, and 3000 students were invited to participate in the research. Out of these, 1523 students agreed to answer the questions. In this survey, the population and the sample are:

- A. population: 3000 students, sample: 1523
- B. population: 24527 students, sample: 3000
- C. population: 3000 students, sample: 1523
- D. population: 27527 students, sample: 1523

2. The following pie chart gives the distribution of tourists from the 4 Nordic countries that visited Cyprus during the first half of 2019 (the numbers below each country's name correspond to the degrees of each sector). If all the tourists who visited Cyprus during the first half of 2019 were 1.631.023 of whom 59923 were Swedes, then the percentage of tourists from Sweden and Finland, in relation to the total number who visited Cyprus, in the first half of 2019, is:



- A. 4,32%
- B. 6,61%
- C. 77,39%
- D. 4,31%

3. The following table presents the grades received by students in a common test in Mathematics conducted between four classrooms of the same school level. The percentage of students whose grade on the test was higher than the mean value of the test is:

Grades	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Students	-	-	1	-	-	1	2	1	1	3	-	7	7	9	12	5	4	4	2	1

- A. 73,33%
- B. 61,67%
- C. 90%
- D. 85%

4. An electronic point on an orthogonal coordinate system makes random movements of a unit length each time it moves up, down, right and left in the possible directions. The probability of moving in any direction is the same. At this moment, the point is at the origin. The probability of the point, in the following two random movements, to be located again at the origin is:

- A. $\frac{1}{4}$
- B. $\frac{1}{3}$
- C. $\frac{2}{7}$
- D. $\frac{4}{7}$

5. Eighty (80) students in the first grade of an upper secondary school who follow the Orientation Group 1 (OG1) decided next year to follow either the Direction 1 (DIR1) or the Direction 2 (DIR2). Of these students, 20 out of 48 girls said they would follow DIR2 next year, and 8 boys said they would follow DIR1. We take at random one of these 80 students. The probability that the student taken would follow the DIR2 for next year is:

A. 0,55

B. 0,35

C. 0,65

D. 0,45

6. Three numbers are taken at random from the set $A = \{3,4,5,12,13\}$. The probability that these three numbers are the lengths of a right-angled triangle is:

A. $\frac{2}{5}$

B. $\frac{1}{5}$

C. $\frac{4}{5}$

D. $\frac{2}{9}$

7. The real numbers -7, -2, x, 3, y, 13, are in ascending order. Their mean value is 2, and their median is also 2. The values of x and y, respectively, are:

A. 1 and 6

B. -2 and 7

C. 1 and 4

D. -1 and 6

8. According to the Health Monitoring Unit of the Ministry of Health, the distribution, by gender and age, of deaths due to COVID-19 disease, until 26/10/2021, is given by the following table. If a person died because of the COVID-19 disease is taken at random from the relevant register death lists, the probability that this person is a male, given that he was under 80 years old, is:

	Men	Women	Total
Under 60 years	39	17	56
60 -79 years	185	72	257
Above 80 years	139	118	257
Total	363	207	570

- A. 0,72
- B. 0,39
- C. 0,62
- D. 0,86

9.

Two fair dice are rolled simultaneously, and their outcome is added. Let x be the sum of the outcome of the two dice. If the probability of x is $\frac{1}{9}$ that is

$p(x) = \frac{1}{9}$ and $x < 7$ then x is equal to:

- A. 6
- B. 5
- C. 9
- D. 8

10.

Of the 80 students of the first grade of a lower secondary school, 38 have a personal account on Facebook, 14 have a personal account on Instagram and Facebook, and 10 students do not have a personal account on either Facebook or Instagram.

If a student, from the first grade of this school, is taken at random, the probability that he or she has an account only on Facebook or only on Instagram is:

- A. 0,7
- B. 0,875
- C. 0,175
- D. 0,4

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1 - Basic knowledge test

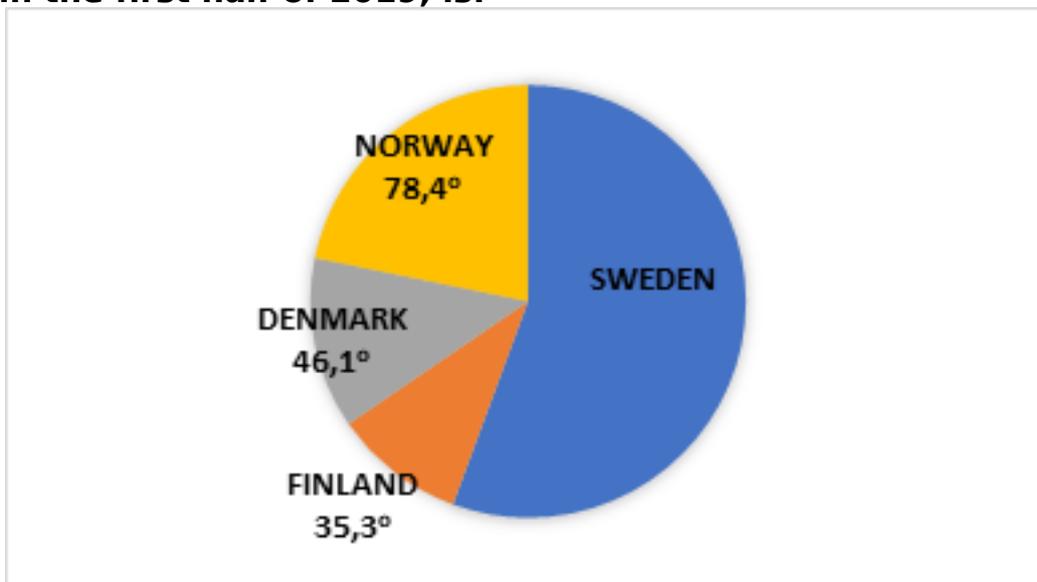
Version: 2 Language: en

1. A questionnaire was used for a survey conducted at secondary schools in Cyprus to investigate the impact of the COVID-19 pandemic on students' customs. For this purpose, a sample of 27275 students was selected, and 4000 students were invited to participate in the research. Out of these, 1532 students agreed to answer the questions.

In the above case, the population and sample are:

- A. population: 4000 students, sample: 1532
- B. population: 23275 students, sample: 4000
- C. population: 4000 students, sample: 1532
- D. population: 27275 students, sample: 1532

2. The following pie chart gives the distribution of tourists from the 4 Nordic countries that visited Cyprus during the first half of 2019 (the numbers below each country's name correspond to the degrees of each sector). If all the tourists who visited Cyprus in the first half of 2019 were 1.631.023 of whom 59923 were Swedes, then the percentage of tourists from Sweden and Denmark, in relation to the total number who visited Cyprus, in the first half of 2019, is:



- A. 4,52%

- B. 6,61%
- C. 68,42%
- D. 4,51%

3. The following table presents the grades received by students in a common test in Mathematics conducted between four classrooms of the same school level. The percentage of students whose grade on the test was higher than the mean value of the test is:

Grades	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Students	-	-	1	-	-	1	2	1	1	2	-	4	5	9	13	8	5	4	3	1

- A. 71,67%
- B. 56,67%
- C. 90%
- D. 86,67%

4. An electronic point on an orthogonal coordinate system makes random movements of a unit length each time it moves up, down, right and left in the possible directions. The probability of moving in any direction is the same. At this moment, the point is at the origin. The probability of the point, in the following two random movements, not to be located again at the origin is:

- A. $\frac{3}{4}$
- B. $\frac{2}{3}$
- C. $\frac{5}{7}$
- D. $\frac{3}{7}$

5. Eighty (80) students in the first grade of an upper secondary school who follow the Orientation Group 1 (OG1) decided next year to follow either the Direction 1 (DIR1) or the Direction 2 (DIR2). Of these students, 20 out of 38 girls said they would follow DIR1 next year, and 12 boys said they would follow DIR2. We take at random one of these 80 students. The probability that the student taken would follow the DIR1 for next year is:

- A. 0,50
- B. 0,375

C. 0,60

D. 0,625

6. Three numbers are taken at random from the set $A = \{3,4,5,7,12,13\}$. The probability that these three numbers are the lengths of a right-angled triangle is:

A. $\frac{3}{20}$

B. $\frac{1}{10}$

C. $\frac{1}{3}$

D. $\frac{1}{6}$

7. The real numbers $-7, -2, x, 3, y, 13$, are in ascending order. Their mean value is 2, and their median is 1.5. The values of x and y , respectively, are:

A. 0 and 3

B. -2 and 5

C. 0 and 5

D. -1 and 4

8. According to the Health Monitoring Unit of the Ministry of Health, the distribution, by gender and age, of deaths due to COVID-19 disease, until 26/10/2021, is given by the following table. If a person died because of the COVID-19 disease is taken at random from the relevant register death lists, the probability that this person is a female, given that she was under 80 years old, is:

	Men	Women	Total
Under 60 years	39	17	56
60 -79 years	185	72	257
Above 80 years	139	118	257
Total	363	207	570

A. 0,28

B. 0,16

C. 0,43

D. 0,66

9. .

Two fair dice are rolled simultaneously, and their outcome is added. Let x be the sum of the outcome of the two dice. If the probability of x is $\frac{1}{9}$ that is

$p(x) = \frac{1}{9}$ and $x > 7$ then x is equal to:

A. 5

B. 9

C. 8

D. 6

10. **Of the 90 students of the first grade of a lower secondary school, 38 have a personal account on Facebook, 14 have a personal account on Instagram and Facebook, and 10 students do not have a personal account on either Facebook or Instagram.**

If a student, from the first grade of this school, is taken at random, the probability that he or she has an account only on Facebook or only on Instagram is:

A. 0,73

B. 0,16

C. 0,89

D. 0,51

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B - Lower secondary

1 - Basic knowledge test

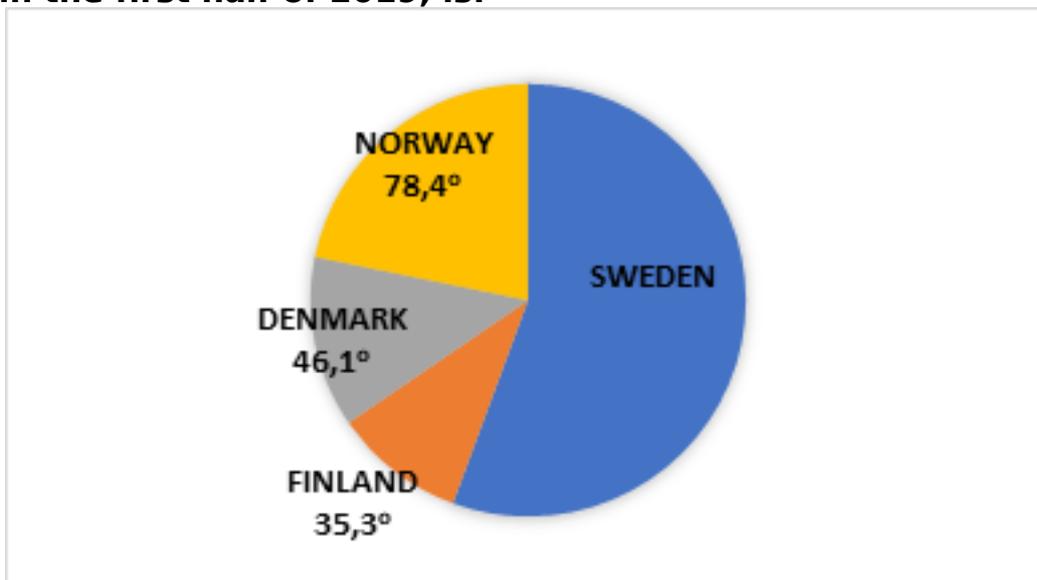
Version: 3 Language: en

1. A questionnaire was used for a survey conducted at secondary schools in Cyprus to investigate the impact of the COVID-19 pandemic on students' customs. For this purpose, a sample of 27572 students was selected, and 3500 students were invited to participate in the research. Out of these, 1323 students agreed to answer the question.

In the above case, the population and sample are:

- A. population: 3500 students, sample: 1323
- B. population: 24072 students, sample: 3500
- C. population: 3500 students, sample: 1323
- D. population: 27572 students, sample: 1323

2. The following pie chart gives the distribution of tourists from the 4 Nordic countries that visited Cyprus during the first half of 2019 (the numbers below each country's name correspond to the degrees of each sector). If all the tourists who visited Cyprus in the first half of 2019 were 1.631.023 of whom 59923 were Swedes, then the percentage of tourists from Sweden and Norway, in relation to the total number who visited Cyprus, in the first half of 2019, is:



- A. 5,11%

- B. 6,61%
- C. 3,7%
- D. 5,10%

3. The following table presents the grades received by students in a common test in Mathematics conducted between four classrooms of the same school level. The percentage of students whose grade on the test was higher than the mean value of the test is:

Grades	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Students	-	-	1	-	1	2	2	2	2	4	7	5	9	11	5	3	3	2	-	1

- A. 65%
- B. 56,67%
- C. 83,33%
- D. 76,67%

4. An electronic point on an orthogonal coordinate system makes random movements of a unit length each time it moves up, down, right and left in the possible directions. The probability of moving in any direction is the same. At this moment, the point is at the origin. The probability of the point, in the following two random movements, to be located either at the point (-1,-1) or at the point (0,2) is:

- A. $\frac{1}{4}$
- B. $\frac{3}{16}$
- C. $\frac{1}{5}$
- D. $\frac{1}{8}$

5. Eighty (80) students in the first grade of an upper secondary school who follow the Orientation Group 1 (OG1) decided next year to follow either the Direction 1 (DIR1) or the Direction 2 (DIR2). Of these students, 20 out of 48 girls said they would follow DIR1 next year, and 8 boys said they would follow DIR2. We take at random one of these 80 students. The probability that the student taken would follow the DIR1 for next year is:

- A. 0,65

B. 0,35

C. 0,45

D. 0,55

6. Three numbers are taken at random from the set $A = \{3,4,5,12,13\}$. The probability that these three numbers are not the lengths of a right-angled triangle is:

A. $\frac{2}{5}$

B. $\frac{1}{5}$

C. $\frac{4}{5}$

D. $\frac{2}{9}$

7. The real numbers $-7, -2, x, 3, y, 13$, are in ascending order. Their mean value is 2, and their median is 2.5. The values of x and y , respectively, are:

A. 2 and 5

B. -1 and 6

C. 2 and 3

D. 0 and 5

8. According to the Health Monitoring Unit of the Ministry of Health, the distribution, by gender and age, of deaths due to COVID-19 disease, until 26/10/2021, is given by the following table. If a person died because of the COVID-19 disease is taken at random from the relevant register death lists, the probability that this person is a male, given that he was above 60 years old, is:

	Men	Women	Total
Under 60 years	39	17	56
60 -79 years	185	72	257
Above 80 years	139	118	257
Total	363	207	570

- A. 0,63
- B. 0,57
- C. 0,71
- D. 0,89

9. .

Two fair dice are rolled simultaneously, and their outcome is added. Let x be the sum of the outcome of the two dice. If the probability of x is $\frac{1}{12}$ that is

$p(x) = \frac{1}{12}$ and $x > 7$ then x is equal to:

- A. 4
- B. 10
- C. 5
- D. 9

10. **Of the 70 students of the first grade of a lower secondary school, 38 have a personal account on Facebook, 14 have a personal account on Instagram and Facebook, and 10 students do not have a personal account on either Facebook or Instagram.**

If a student, from the first grade of this school, is taken at random, the probability that he or she has an account only on Facebook or only on Instagram is:

- A. 0,657
- B. 0,20
- C. 0,857
- D. 0,314