Name and Surname:

MATHEMATICS – TEST 1

Exactly one from the given answers (A)–(D) *at each problem is always true. Mark right answers with crossing in this paper.*

1. What is the smallest four-digit positive integer which has four different digits?

(A) 1 032 (B) 1 021 (C) 1 234 (D) 1 023

2. In rectangle $ABCD$, the ratio of the angle ADB to the angle ABD is $1 : 5$. What is the size of the angle BDC?

(A) 15° (B) 18° (C) 72° (D) 75°

3. What is the integer x so that $\frac{x}{9}$ lies between $\frac{71}{7}$ and $\frac{113}{11}$?

(A) 89 (B) 91 (C) 92 (D) 95

4. If $|x - 2| = p$, where $x < 2$, then $x + 1$ equals

(A) -2 (B) $3 - p$ (C) $|2p - 2|$ (D) $2p - 2$

5. A chord which is the perpendicular bisector of a radius of length 12 in a circle has length

(A) 27 (B) $12\sqrt{3}$ (C) $6\sqrt{3}$ (D) $3\sqrt{3}$

6. The sum $1 - 2 + 3 - 4 + 5 - \cdots - 2\,014 + 2\,015$ is equal

(A) $1\,008$ (B) $1\,007$ (C) 1 (D) $-1\,007$

7. We are given a triangle with sides of lengths $6, 8, 10$. The radius of its circumcircle is

(A) 4 (B) 4.5 (C) 5 (D) 6

8. Let $S = (x-1)^3 + 3(x-1)^2 + 3(x-1) + 1$. Then S is equal

(A) $(x-2)^3$ (B) $(x-1)^3$ (C) $x^3 - 1$ (D) x^3

9. Let $ABCDEF$ be a regular hexagon in the plane and $ABGHJ$ be a regular pentagon lying in the opposite half-plane with respect to the line AB as the hexagon $ABCDEF$. The measure of the angle FJA is

(A) $17.5°$ (B) $22.5°$ (C) $24°$ (D) $30°$

10. What is the smallest prime number dividing the sum $3^{2014} + 7^{2015}$

(A) 2 (B) 5 (C) 11 (D) $3^{2014} + 7^{2015}$

MATHEMATICS – TEST 1

Answers:

1. (D)

2. (D)

3. (C)

4. (B)

5. (B)

6. (A)

7. (C)

8. (D)

9. (C)

10. (A)