

Imię i nazwisko:

Klasa:

Grupa 2

Wynik:

**Question 1 (1 pt)**

The number  $x$  has been rounded up to 12. If the percentage error of the estimate is 11.(1)%, then  $x$  is equal to:

- A. 10.8      B. 11.8      C. 12.8      D. 13.8

**Question 2 (1 pt)**

How many solution does the inequality  $3|x - 4| + 5 > 2$  have?

- A. 0      B. 1      C. 2      D. infinitely many

**Question 3 (1 pt)**

$|\sqrt{2} - 1| + 2|\sqrt{2} - 2| - 3|1 - \sqrt{2}| =$

- A.  $-2$       B.  $6 - 4\sqrt{2}$       C.  $6\sqrt{2} - 8$       D.  $2\sqrt{2}$

**Question 4 (1 pt)**

$(\sqrt{147} - \sqrt{675} + \sqrt{300})^2 =$

- A. 6      B.  $2\sqrt{3}$       C. 9      D. 12

**Question 5 (1 pt)**

The solution set to  $|4|x + 2| - 3| < 4$  is

- A.  $\emptyset$       B.  $(-3.75, -2.25) \cup (-1.75, -0.25)$   
C.  $(-2.25, -0.25)$       D.  $(-3.75, -0.25)$

**Question 6 (2 pts)**

Prove that  $3^{15} + 3^{16} + 3^{18}$  is divisible by 93.

**Question 7 (3 pts)**

Solve:

$$(3x - 1)^2 - (2x - 3)(3x - 1) = (1 - 3x)(5 - x)$$

**Question 8 (3 pts)**

Solve:

$$|x - 3| - |x + 1| < -2$$

**Question 9 (3 pts)**

Rectangle has sides of lengths 62 and 79. Round the lengths of sides to the nearest 10 and hence estimate the area of the rectangle. Calculate the percentage error of your estimate.

**Question 10 (4 pts)**

Discuss the number of solutions to the equation:

$$|3x - 7| + |3x + 1| = k$$

depending on the parameter  $k$ .

**Extra question**

Discuss the number of solutions to the equation:

$$|x - a| + |x + a| = b$$

depending on the parameters  $a$  and  $b$ .