Imię i nazwisko:
Klasa:
Grupa 1
Wynik:

Question 1 ***(1 pt)***
The number 43512.125 correct to 2 significant figures is:

A. 43000 B. 44000 C. 43512.12 D. 43512.13

Question 2 ***(1 pt)***
$5.2 \times 10^{25} - 3.7 \times 10^{24} =$

A. 1.5×10^{24} B. 1.5×10^{25} C. 4.83×10^{24} D. 4.83×10^{25}

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)***
$(\sqrt{98} - \sqrt{578} + \sqrt{338})^2 =$

A. 6 B. $3\sqrt{2}$ C. 9 D. 18

Question 5 ***(1 pt)***
The following sum

$$\frac{(2^7 \div 2^3)^{-1} \times (2^{18} \div 2^{24})^{-2}}{(4^{17} \div 8^9)^5 \div (16^3 \div 32^5)^{-2}}$$

is equal to?

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

Question 6 ***(2 pts)***

Prove that $2^{15} + 2^{17} + 2^{18}$ is divisible by 26.

Question 7 ***(3 pts)***

Solve:

$$||x - 3| + 1| - 2 < 0$$

Question 8 ***(3 pts)***

Solve:

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

Question 9 ***(3 pts)***

Rectangle has sides of lengths 78 and 61. Round the lengths of sides to 1 significant figure 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:

$$|2x - 1| + |2x + 7| = k$$

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.