2005 QAMT Problem-Solving Competition - Year 8 Paper

Question 1   Using the numbers 1 to 9 each once, fill in the boxes to make the equation correct.

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| 2 marks |

Question 2   Arrange 6 matches of equal length to form 8 equilateral triangles. The matches must not be broken and must be laid end to end, although they are allowed to cross.

| 3 marks |

Question 3   What are the largest and smallest number of Friday the 13ths that can occur in any year (Jan 1st to Dec 31st)?

| 4 marks |

Question 4   According to a survey, at least 70% of people like apples and at least 75% like bananas. What can you say about the percentage of people who like both?

| 4 marks |

Question 5   Suppose you have four rectangles of size 1×2, three of size 2×3, two of size 3×3, and one of size 5×5. Can you arrange them to form a single large rectangle?

| 4 marks |

Question 6   Suppose x and y are positive integers satisfying $13x + 8y = 2005$. What is the minimum possible value of $x + y$?

| 3 marks |