Grade 9

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by Functional_equation

1 13 fractions are corrected by using each of the numbers $1, 2, ..., 26$ once.**Example:**$\frac{12}{5}, \frac{18}{26}....$
What is the maximum number of fractions which are integers?

2 a, b, c are positive integer.
Solve the equation: $2^{a!} + 2^{b!} = c^3$

3 a, b, c are positive numbers.$a + b + c = 3$
Prove that: $\sum \frac{a^2+6}{2a^2+2b^2+2c^2+2a-1} \leq 3$

4   There is a non-equilateral triangle ABC.Let ABC's Incentri I.Point D is on the BC side.The circle drawn outside the triangle IBD and ICD intersects the sides AB and AC at points E and F.The circle drawn outside the triangle DEF intersects the sides AB and AC at N and M.Prove that $EM \parallel FN$.

5 a, b, c are non-negative integers.
Solve: $a! + 5^b = 7^c$

Proposed by Serbia