July, 2016

Relay Questions for Grades 5 & 6

Relay Round #1

1-1.   What is the remainder when 2^{1000} is divided by 7?

1-2.   Let n = TNYWR. What is the units digit of $(49n + 1)\pi$?
[Note: $\pi \approx 3.1415926535898\ldots.$]

1-3.   What is the larger of two numbers whose difference is (6 + TNYWR) and whose square roots add up to (6 + TNYWR)?

1-4.   Let n = TNYWR. Dan is now $2n$ years older than Steve. In 10 years, Dan will be three times as old as Steve will be. How old is Dan now?

1-5.   If n is the number of positive integers less than 1000 that are perfect squares and the sum of three consecutive positive integers, then what is the value of $(n + \text{TNYWR})$?
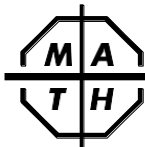
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Relay Questions for Grades 5 & 6

Relay Round #2

2-1. What is the sum of the numerator and denominator of the smallest of the following fractions: $\dfrac{1}{11}, \dfrac{11}{111}, \dfrac{111}{1111}, \dfrac{1111}{11111}$?

2-2. Let n = TNYWR. What is the smallest integer greater than 10 000 such that the sum of its digits is $(n-9)$ times the product of its digits?

2-3. For how many different positive integers n is $\dfrac{TNYWR}{8n}$ an integer?

2-4. What is the smallest number for which $|x| + |x-4| \le (\text{TNYWR})^2$?

2-5. The sum of two numbers is TNYWR and the sum of the squares of these two numbers is 200. What is the product of these two numbers?