



Potpourri – 8th Grade

1. **2 points:** How many positive four-digit palindromes are divisible by 6?
2. **2 points:** What is the sum of the greatest possible 3-digit base-two number, 4-digit base-three number, and 5-digit base-four number? **Express your answer as a base-ten number.**
3. **2 points:** How many digits does the standard form of the cube of 3.14×10^{2016} have?
4. **3 points:** How many positive integers between 100 and 1000, inclusively, are not multiples of 3 or 4?
5. **3 points:** How many positive integral factors does 2016 have?
6. **3 points:** How many positive three-digit numbers become smaller when their digits are reversed?
7. **3 points:** The fifth term in a geometric sequence is 144, and the eighth term is 486. What is the first term of the sequence? **Express your answer as a decimal.**
8. **4 points:** What is the product of the two base-7 numbers 2016_7 and 314_7 , written in base 7?
9. **4 points:** What is the sum of the unique prime factors of 3,141,500?
10. **4 points:** What is the 234th smallest number that is divisible by 2, 3, 4, 5, 8, 9, and 14?