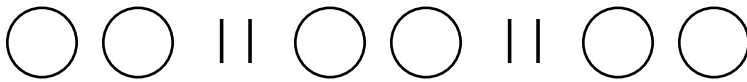


2003 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri - Grade 6

1. The difference between a number and its reciprocal is $\frac{56}{45}$. What is the sum of this number and its reciprocal? [Answer as an exact fraction.]
2. The numbers 1 through 6 are each to be used once in the following multiplication problem. What is the difference between the minimum and maximum values of the product?



3. Captain McKee flies an airline route that takes him around the world in 7 days. After working for 7 days he gets 14 days off. If he begins his first around the world trip on January 1, 2003, how many times will he travel around the world in 2003?
4. The first 4 dot patterns are shown. How many dots are in the tenth pattern?
5. What time is it 2003 minutes after 8:03 p.m. (20:03 in military time)?
6. What is the sum of the prime factors of 19,062,043?
7. Using the numbers 2, 3, 4, and 5 each once to replace the variables w , x , y , and z , what is the maximum possible value for the expression $w + x \cdot y^z$?
8. Of the 28 students in the class 14 have cell phones and 11 have graphing calculators. If 7 of these students have both devices, how many have neither?
9. In how many ways can change for a quarter be made using standard U.S. coins?

10. The eight rules for each new row of the pattern are as follows:

$\begin{matrix} \square & 1 & 1\square\square & 1 & 0\square\square & 0 & 1\square\square & 0 & 0\square\square & 1 & 1\square\square & 1 & 0\square\square & 0 & 1\square\square & 0 & 0\square \\ \square & 0 & \square\square & 0 & \square\square & 0 & \square\square & 1 & \square\square & 1 & \square\square & 1 & \square\square & 1 & \square\square & 0 & \square \end{matrix}$

The pattern so far is

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0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 1 0 0 1 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 1 0 1 1 1 1 0 0 0 0 0 0 0
0 0 0 0 0 1 1 0 1 1 1 1 0 1 1 1 0 0 0 0
0 0 0 0 1 1 0 0 1 0 0 0 0 1 0 0 1 0 0 0
0 0 0 1 1 0 1 1 1 1 0 0 1 1 1 1 1 0 0 0
0 0 1 1 0 0 1 0 0 0 1 1 1 0 0 0 0 0 1 0
0

```

What sequence of 19 0's and 1's completes the next row of the pattern?