

*“There are 10 kinds of people in the world, those who know binary, and those who don’t.”*

1. The following numbers are given in binary, figure out what they are:

(a)  $11 =$

(b)  $10101 =$

(c)  $10 \cdots 0 =$  (where there are  $n$  0’s)

(d)  $111 \cdots 1 =$  (where there are  $n$  1’s)

2. Write in binary:

(a)  $10 =$

(b)  $20 =$

(c)  $2^4 =$

(d)  $2^{15} - 1 =$

(e)  $2^5 - 2^2 =$

3. Calculate, in binary

(a)  $1011 + 1001 =$

(b)  $1011 - 1001 =$

(c)  $1011 \times 1001 =$

(d)  $1111 \div 101 =$

4. Complete the multiplication

$$\begin{array}{r}
 \phantom{\times} \phantom{1} \phantom{0} \phantom{B} \\
 \phantom{\times} \phantom{1} \phantom{0} \phantom{A} \phantom{1} \phantom{1} \\
 \hline
 \phantom{\times} \phantom{1} \phantom{0} \phantom{C} \\
 \phantom{\times} \phantom{1} \phantom{0} \phantom{1} \\
 \phantom{\times} \phantom{D} \phantom{E} \phantom{F} \\
 \hline
 \phantom{\times} 1 \phantom{0} \phantom{G} \phantom{H} \phantom{1} \phantom{1}
 \end{array}$$

**Math Competition** We are considering participating in the 2007 Math is Cool competition this spring for the 4th and 5th graders. Participation is not required, however we think that this would be a very fun and educational experience. The actual dates of competition are Saturday, March 23 for 4th grade and Friday, April 20 for 5th grade. Registration is due February 23rd. Both are held at Bear Creek Elementary in Woodinville. The fees are \$10 per grade level and \$40 per team. If your child would like to participate, please let us know at [robertwb@math.washington.edu](mailto:robertwb@math.washington.edu) and [mgoff@math.washington.edu](mailto:mgoff@math.washington.edu). We are also looking for volunteers to be drivers and chaperones.