

BLACKSBURG MATH CIRCLE: SATURDAY, OCTOBER 31, 2015

WARM-UP PROBLEMS

*Each cryptarithm puzzle below represents an arithmetical statement. In other words, in a single puzzle a  $P$  might represent the digit 4, and if so, then it represents a 4 everywhere in the puzzle, and **no other letter will have that value**. But the value of  $P$  can be different in different puzzles. If we write  $AB$ , we mean the integer with tens digit  $A$  and units digit  $B$ . That is, juxtaposition of letters denotes place value, and not multiplication. Multiplication, either of single digits or multi-digit numbers, is indicated with a  $x$ . We assume for this sort of puzzle that there are no leading zeroes (zeroes to the left of the numeral).*

1.  $W + O = OF$

2.  $P + P + P = I = G + G$

3.  $BA = A \times A \times A$

4.  $GO + ON = ONO$

5.  $C \times H \times I \times C \times K \times E \times N \times P \times O \times T \times P \times I \times E \times S = \text{?????}$

6.  $A + A + A + A + A + A + A + A + A + A + A + P = E$

7.  $AB - BA = A$