Whatcom County Math Championship – 2012
Algebra – 4th Grade

1. How many odd numbers are there bigger than 2 but less than 50?

2. What is the greatest common divisor of 144 and 168?

3. For what value of x is this equation true: $\dfrac{13+11}{x} = 8$

4. What is the next number in this sequence: 8, 10, 14, 20, 28, _____.

5. If $4 \otimes 5 = 10$ and $9 \otimes 6 = 27$, what is $8 \otimes 9$?

6. Write $\dfrac{1}{1+\dfrac{1}{1+1}}$ as a simplified and reduced fraction.

7. In the number 309,000 the last three zeros are called **terminal zeros**. How many terminal zeros are there in the answer to 10 x 20 x 30 x 40 x 50 x 60 x 70 x 80 x 90?

8. Flora spent $24 at Vowell's bookstore buying Sudoku books and mystery books. If the Sudoku books were $3 each and the mysteries were $6 each and she bought a total of 7 books, how many mystery books did she buy?

9. $(100\%)^{200} =$

10. Let $a\blacklozenge = 3a + 1$. What is $2\blacklozenge\blacklozenge\blacklozenge\blacklozenge\blacklozenge$?

Whatcom County Math Championship – 2012
Algebra – 5th Grade

1. What is the next number in this sequence: 8, 10, 14, 20, 28, _____.

2. If $4 \otimes 5 = 10$ and $9 \otimes 6 = 27$, what is $8 \otimes 9$?

3. Write $\dfrac{1}{1 + \dfrac{1}{1+1}}$ as a simplified and reduced fraction.

4. In the number 309,000 the last three zeros are called **terminal zeros**. How many terminal zeros are there in the answer to 10 x 20 x 30 x 40 x 50 x 60 x 70 x 80 x 90?

5. Flora spent $24 at Vowell's bookstore buying Sudoku books and mystery books. If the Sudoku books were $3 each and the mysteries were $6 each and she bought a total of 7 books, how many mystery books did she buy?

6. $(100\%)^{200} =$

7. Let $a\blacklozenge = 3a + 1$. What is $2\blacklozenge\blacklozenge\blacklozenge\blacklozenge\blacklozenge$?

8. Wesley woke up at 6:32 and 24 seconds in the morning, and fell asleep at 8:12 and 16 seconds that night. How many seconds was he awake?

9. What is the sum of the first 100 even numbers?

10. What is the next number in this sequence: 360, 180, 120, 90, 72, _____

Whatcom County Math Championship – 2012
Algebra – 6th Grade

1. In the number 309,000 the last three zeros are called **terminal zeros**. How many terminal zeros are there in the answer to 10 x 20 x 30 x 40 x 50 x 60 x 70 x 80 x 90?

2. Flora spent $24 at Vowell's bookstore buying Sudoku books and mystery books. If the Sudoku books were $3 each and the mysteries were $6 each and she bought a total of 7 books, how many mystery books did she buy?

3. $(100\%)^{200} =$

4. Let a♦ = 3a + 1. What is 2♦♦♦♦♦?

5. Wesley woke up at 6:32 and 24 seconds in the morning, and fell asleep at 8:12 and 16 seconds that night. How many seconds was he awake?

6. What is the sum of the first 100 even numbers?

7. What is the next number in this sequence: 360, 180, 120, 90, 72, _____

8. Write 58 as a binary number.

9. If the sum of 4 consecutive odd numbers is 1264, what is the largest number?

10. Write $\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+1}}}}$ as a simplified and reduced fraction.

Whatcom County Math Championship – 2012
Algebra – 7ᵗʰ + 8ᵗʰ Grade

1. Let a♦ = 3a + 1. What is 2♦♦♦♦♦?

2. Wesley woke up at 6:32 and 24 seconds in the morning, and fell asleep at 8:12 and 16 seconds that night. How many seconds was he awake?

3. What is the sum of the first 100 even numbers?

4. What is the next number in this sequence: 360, 180, 120, 90, 72, _____

5. Write 58 as a binary number.

6. If the sum of 4 consecutive odd numbers is 1264, what is the largest number?

7. Write $\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+1}}}}$ as a simplified and reduced fraction.

8. In the game *foootball*, a muchdown is worth 5 points and a shieldgoal is worth 2 points. The final score of the Sooperbowl was the NY Dwarves 21, the NE Dragons 20. One way for this score to be reached is the Dwarves scoring 3 muchdowns and 3 shieldgoals, while the Dragons scoring 4 muchdowns. If the order of the scoring does not matter, how many ways could the final score have been reached?

9. In the sequence 1, 8, 15, 22, …, each number is 7 more than the number before it. In the sequence 1, 10, 19, 28, …, each number is 9 more than the number before it. The two sequences have infinitely many numbers in common. Find the sum of the first three common numbers.

10. Mark the letter which corresponds to the number that is the largest:

a) 2^{3^4} b) 2^{4^3} c) 3^{4^2} d) 4^{3^2} e) 4^{2^3}