

Chapel Hill Math Circle

## *Elementary Group*

Oct. 8, 2016

### **Factors**

- 1) How many factors (divisors) does the number 15 have?
- 2) How many factors does the number 100 have?
- 3) Can you find a number with
  - a. Exactly 2 different factors?
  - b. Exactly 3 different factors?
  - c. Exactly 10 different factors?
  - d. More than 100 factors?

### **Extra Problem**

What are all the *prime* factors of 420?

## Puzzle 2

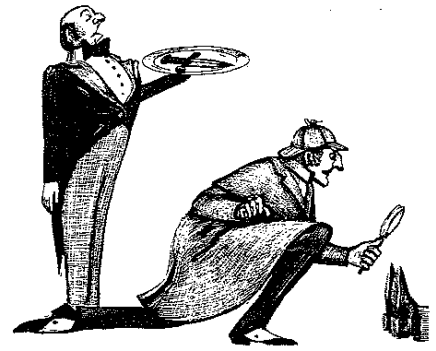
1. It is a three-digit whole number.
2. Its tens digit is 5.
3. It is divisible by 4.
4. It is divisible by 9.
5. Each of its digits is different.
6. Its ones digit is greater than its tens digit.
7. Its hundreds digit is greater than its ones digit.
8. It is less than 800.
9. It is divisible by 7.
10. Its ones digit is 6.



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## Puzzle 3



1. It is a four-digit whole number.
2. Each of its digits is even.
3. Each of its digits is different.
4. The sum of its ones digit and its hundreds digit is 10.
5. The sum of its tens digit and its thousands digit is 10.
6. It is greater than 7000.
7. It is divisible by 4.
8. The numeral 0 is not one of its digits.
9. It is divisible by 8.
10. Its hundreds digit is 6.

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## Puzzle 4

1. It is a four-digit whole number.
2. It is greater than 5800.
3. It is less than 6200.
4. The sum of its ones digit and its hundreds digit is 9.
5. The sum of its tens digit and its thousands digit is 9.
6. It is divisible by 4.
7. It is divisible by 9.
8. It is divisible by 11.
9. It is divisible by 5.
10. Its hundreds digit is 9.



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## Puzzle 5

1. It is a three-digit whole number.
2. It is divisible by 4.
3. It is divisible by 5.
4. It is divisible by 11.
5. It is divisible by 3.
6. It is divisible by 10.
7. It is divisible by 6.
8. It is not divisible by 9.
9. It is not divisible by 8.
10. It is not divisible by 7.



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