Name:_____ Date:_____

Math 8 Honours HW Lesson 6 Prime, Factors, LCM, and GCF

1. What does it mean that two values are relatively prime? Explain?

2. If the GCF of "a" and "b" is one of the values "a" or "b", then what is the relationship between "a" and 'b'?

3. IF the LCM of "a" and "b" is one of the values "a" or "b", then what is the relationship between "a" and 'b'?

4. Circle all the prime numbers below. If it's not a prime number, give one of its factors other than 1:

| | | | | | |
|---|---|---|---|---|---|
| 23 | 29 | 39 | 43 | 49 | 61 |
| 71 | 93 | 79 | 101 | 109 | 113 |
| 117 | 119 | 137 | 147 | 157 | 169 |

5. Given each set of numbers below, find the greatest common factor (GCF) and lowest common multiple (LCM):

| | | |
|---|---|---|
| a) $\langle 15, 24 \rangle$<br>GCF: LCM: | b) $\langle 18, 12 \rangle$<br>GCF: LCM: | c) $\langle 16, 8 \rangle$<br>GCF: LCM: |
| d) $\langle 35, 14 \rangle$<br>GCF: LCM: | e) $\langle 65, 91 \rangle$<br>GCF: LCM: | f) $\langle 195, 221 \rangle$<br>GCF: LCM: |

6. How many prime numbers are there less than 100? (list them out)

7. Is "1" a prime number? Explain:

8. Check if each of the following integers are prime numbers: (Use the Prime Number TEST). If the number is NOT a prime, state of it's prime (other than 1)

| | | |
|---|---|---|
| a) 117 | b) 167 | c) 279 |
| d) 913 | e) 493 | f) 891 |
| g) 1003 | h) 451 | i) 717 |
| j) 637 | k) 217 | L)323 |

9. Suppose "A" and "B" are integers with a GCF of "x" and a product of "y". What is the LCM in terms of "x" and "y"?

10. Suppose 1316 and 2820 have a GCF of 188. What is the LCM?

11. What is the smallest number with four factors?

12. Find a number between 1 to 100 that has 5 factors?

13. Why do perfect squares have an "odd" number of factors? Explain:

14. What number less than 100 has the greatest number of factors?

15. In the multiplication shown below, each letter represents a different digit. What digit does the letter "C" represent?

$$\begin{array}{r} ABCDE \\ \times\ E \\ \hline EDADE \end{array}$$

16. Find the smallest two-digit number that is twice the product of its digits

17. What is the product of the LCM and GCF of two distinct numbers "a" and "b"?

18. Suppose that $N_1 = a^3 \times b^4 \times c^5$ and $N_2 = a^2 \times b^1 \times c^6 \times d^2$ , where "a", "b", "c" and "d" are all prime factors. What is the GCF and LCM in terms of "a", "b", "c" and "d"?

19. If two numbers "a" and "b" have a GCF of 36 and a LCM of 1440, then what are the possibilities of "a" and "b" if a > b?

20. Challenge: Given that a, b, c, d, e, f, g, h, and i all represent a different digit from 1 to 9. If $\frac{ab}{cde} + \frac{fg}{hi} = 7$ , then what numbers do each letter represent?