

Math 1303 - Math in the Liberal Arts

Exam #3 - 2014.11.07

Name: _____

For the following problems, let $x = 1980$, $y = 3150$, and $z = 924$.

1. Compute the prime factorization of the numbers x , y , and z .

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2. Compute the $\text{GCD}(x, y)$.

3. Compute the $\text{GCD}(y, z)$.

4. Compute the $\text{GCD}(\text{GCD}(x, y), z)$.

5. Compute the $\text{GCD}(x, \text{GCD}(y, z))$.

6. Consider the set of all positive integers. Is the operation GCD closed with respect to the positive integers?

7. Is GCD commutative? I.e. is $\text{GCD}(x, y) = \text{GCD}(y, x)$?

8. Is GCD associative? I.e. is $\text{GCD}(\text{GCD}(x, y), z) = \text{GCD}(x, \text{GCD}(y, z))$?
(See problems 4 and 5 for inspiration)