GCD/LCM Problem Set

Focus Learning

August 28, 2020

1 Problems

Exercise 1.1. Is $5 \mid 30$ true?

Exercise 1.2. Are the numbers 92 and 55 relatively prime?

Exercise 1.3 (Mandelbrot)**.** Which of 1999, 2000, or 2001 has the largest proper divisor?

Exercise 1.4. Find the greatest common divisor of 144 and 162.

Exercise 1.5. Find the least common multiple of 600 and 750.

Exercise 1.6. Find the least common multiple of 600 and 750.

Exercise 1.7. Find the N if $\gcd(N, 60) = 20$ and $\operatorname{lcm}(N, 60) = 240$.

Exercise 1.8. Using the Euclidean algorithm, find $\gcd(8125, 21)$.

Exercise 1.9. Using the Euclidean algorithm, find $\gcd(15647, 60)$.

Exercise 1.10. You are given that $a \cdot b = 960$, and $\operatorname{lcm}(a, b) = 240$. What is the value of $\gcd(a, b)$.

Exercise 1.11 (MATHCOUNTS)**.** What is the least 4-digit number divisible by 2, 3, 4, 5, 6, and 7.

Exercise 1.12 (Mandelbrot)**.** The product of any two of the positive integers 30, 72, and N is divisible by the third. What is the smallest possible value of N?