

Pre-Algebra Homework 2 Factors

1. Find all of the primes between 70 and 100.
2. *Goldbach's Conjecture* says that every even number greater than 2 is the sum of two primes, though they might be the same prime, and there might be more than one way to write a number as the sum of two primes. For example, $4 = 2 + 2$, $6 = 3 + 3$, $8 = 3 + 5$, and $10 = 5 + 5 = 3 + 7$. "Conjecture" is a fancy word for "guess": nobody knows whether Goldbach's Conjecture is true, but on the other hand nobody has ever found an exception. Check the Conjecture for even numbers up to 20.
3. Find the Greatest Common Factors of the following pairs of numbers, first using Method #1, and then using the Euclidean Algorithm: (a) (16,48) (b) (42,63) (c) (21,16) (d) (52,39)
4. Find the Least Common Multiple of the number pairs in the previous problem
5. A mother wishes to divide 6 chocolate bars evenly among 4 children. What is the smallest total number of pieces needed, into how many pieces must each bar be broken, and how many pieces does each child receive?
6. Calculate the prime factors of the following numbers
(a) 1620
(b) 375
(c) 289
7. President Obama holds a 4th July celebration at the White House for 1289 people. If the invitations come in boxes of 25, each of which costs \$40, what is the cost of the invitations?
8. Use Method #2 at the end of the class notes:

$$LCM(a, b) = \frac{a \times b}{GCF(a, b)}.$$

where a and b are two numbers, to calculate the LCM of

- (a) 13,4
- (b) 10,30
- (c) 9,15

9. Which of the following numbers divides by 3 with no remainder: (a) 246,105 (b) 17 (c) -27 (d) 178,316,166 (e) 29,629,630
10. A school PE coach organizes the children into teams to play lacrosse, basketball, relay racing, and baseball. What is the smallest number of kids at the school which will allow the school to put each child in a team to play every sport? (there are 9 players on a baseball team, 4 on a relay racing team, 5 on a basketball team and 10 on a lacrosse team).