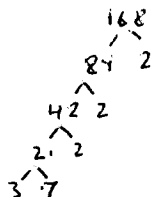


1. Factor 168 into a product of primes by making a tree diagram.



Answer: $168 = 2^3 \cdot 3 \cdot 7$ ✓

2. Without doing long division, test whether 70041026 is divisible by the following numbers. Show clearly how you are applying the test

a) 9 $7+0+0+4+1+0+2+6 = 20$, $9 \nmid 20$ so no

b) 4 Test last two digits. $4 \nmid 26$ so no

c) 11 $7-0+0-4+1-0+2-6 = 0$ so yes

3. Given that $a = 2 \cdot 3^7 \cdot 5^2$, $b = 2^2 \cdot 3^4 \cdot 7^2$, find (in prime power form)

$GCF(a,b) = 2 \cdot 3^4$

$LCM(a,b) = 2^2 \cdot 3^7 \cdot 5^2 \cdot 7^2$

4. Use the Euclidean Algorithm to find $GCF(693,714)$.

$= GCF(693, 21)$

$= GCF(0, 21) = 21$

$$\begin{array}{r}
 1 \\
 693 \overline{) 714} \\
 \underline{693} \\
 21
 \end{array}$$

$$\begin{array}{r}
 33 \\
 21 \overline{) 693} \\
 \underline{63} \\
 63 \\
 \underline{63} \\
 0
 \end{array}$$

5. Find all of the primes between 90 and 100 by crossing out all of the multiples of 2, 3, etc..

~~90~~ ~~91~~ ~~92~~ ~~93~~ ~~94~~ ~~95~~ ~~96~~ ~~97~~ ~~98~~ ~~99~~ ~~100~~

7 · 13

Primes = { 97 }

6. a) Find the prime power factorization of $72 = 8 \cdot 9 = 2^3 \cdot 3^2$

b) Make an array containing all of the factors of 72 by placing powers of 2 across the top and powers of 3 on the left.

| | | | | |
|---|---|----|----|----|
| | 1 | 2 | 4 | 8 |
| 1 | 1 | 2 | 4 | 8 |
| 3 | 3 | 6 | 12 | 24 |
| 9 | 9 | 18 | 36 | 72 |

c) How many factors does 72 have? $3 \times 4 = 12$