HCF, LCM and Primes: Worded Problems

Year 11 · Number · y11-hcf-lcm-primes-problems

Name: _____ Date: _____

Class: _____ Score: _____ / _____

Instructions
Answer every question in Practice. Try the Challenge section once Practice is complete. 10 questions in total.

Practice

1. Find the HCF of 45 and 75.

2. Find the LCM of 9 and 12.

3. $360 = 2^3 \times 3^2 \times 5$ and $420 = 2^2 \times 3 \times 5 \times 7$. Using these, find the HCF.

4. Using the same prime factorisations ($360 = 2^3 \times 3^2 \times 5$, $420 = 2^2 \times 3 \times 5 \times 7$), find the LCM.

5. To find the HCF from index form, take the LOWEST power of each common prime factor. $48 = 2^4 \times 3$ and $180 = 2^2 \times 3^2 \times 5$. Find the HCF.

6. To find the LCM from index form, take the HIGHEST power of every prime factor that appears in either number. Using $48 = 2^4 \times 3$ and $180 = 2^2 \times 3^2 \times 5$, find the LCM.

7. A prime factor tree isn't finished until every branch is prime -- an incomplete tree gives the wrong HCF or LCM. Write 126 as a product of prime factors.

8. The HCF and LCM answer different questions -- HCF is about dividing, LCM is about multiples. Find the HCF of 60 and 84.

Challenge

1. $756 = 2^2 \times 3^3 \times 7$ and $990 = 2 \times 3^2 \times 5 \times 11$. Find the HCF and LCM. Give as: HCF, LCM.

2. A number less than 100 has exactly the prime factors 2, 3 and 5, and is the LCM of 12 and 20. What is the number?

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