# Math 6 Unit 1 worksheet: Finding them from prime factorizations

Name _____ Date _____ Period _____

**1.** Find the GCF and the LCM of each pair. Give each answer as a product of prime powers and as an ordinary number.

(a) $2^3 \cdot 5^2$ and $2^2 \cdot 5 \cdot 7$

(b) $3^4 \cdot 7$ and $3^2 \cdot 7^3$

(c) $2 \cdot 3^2 \cdot 13$ and $2^3 \cdot 3 \cdot 11$

(d) $5^3$ and $2^4 \cdot 3$

**2.** Write 198 and 180 as products of primes. Then use the factorizations to find their GCF and their LCM.

**3.** Find the GCF and the LCM of 48, 72 and 120 from their prime factorizations.

**4.** Sarah finds the LCM of 150 and 196. She writes $150 = 2 \cdot 3 \cdot 5^2$ and $196 = 2^2 \cdot 7^2$, and then $\text{LCM} = 2^2 \cdot 5^2 \cdot 7^2 = 4{,}900$.

(a) Without factorizing anything, show that 4,900 cannot be a common multiple of 150 and 196.

(b) What did Sarah do wrong? Find the correct LCM.


Free sample from math.wiki for classroom use. Do not post. math.wiki

**5.** (a) Find GCF(270, 630) from the prime factorizations.

(b) Every common factor of two numbers is a factor of their GCF. Use this to list all the common factors of 270 and 630.

**6.** Use the product rule, not new factorizations, to test each claim.

(a) Mia says GCF(84, 90) = 6 and LCM(84, 90) = 1,260.

(b) Ryan says GCF(54, 120) = 6 and LCM(54, 120) = 540. His GCF is right. If his claim fails the test, find the correct LCM.

(c) Does passing the test prove that both of Mia's numbers are right? Give a reason.

**7.** Priya keeps bees and puts the honey from one harvest into jars. All the jars can be packed into full cases of 24 jars, or instead into full cases of 45 jars, with no jar left over either way. What is the smallest number of jars there could be, and how many cases does each way use?


Free sample from math.wiki for classroom use. Do not post. math.wiki