

Lesson: Enrichment for Greatest Common Factor, Least Common Multiple and Prime Factorization

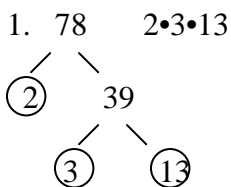
Sixth Grade Objective: 1.05 Develop fluency in the use of factors, multiples, exponential notation, and prime factorization

Review.

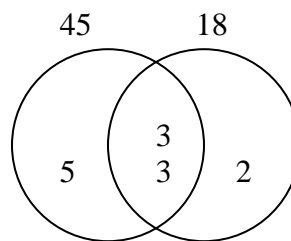
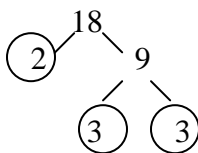
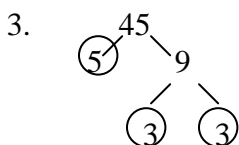
Try these on your own!

1. What is the Prime Factorization of 78?
2. Evaluate 5^{10} .
3. What is the least common multiple and greatest common factor for 45 and 18?
4. Evaluate 25^0 .
5. Write $5 \cdot 5 \cdot 5 \cdot 2 \cdot 2 \cdot 6$ in exponential form.

Check your answers



2. $5^{10} = 97,65,625$



GCF: $3^2 = 9$

LCM: $2 \cdot 3^2 \cdot 5 = 90$

Hint: Learning to use the factor trees and Venn diagram will help find the GCF and LCM of large numbers easier and quicker.

4. $25^0 = 1$
5. $5^3 \cdot 2^2 \cdot 6$

ACTIVITY 1:

Print out the dominoes card (last page of lesson). Cut out the pieces on the solid lines only. Mix up the pieces or if playing with others divide the pieces evenly. Find the start piece and place it in front of you. Then find the next piece that makes the expression true. For example: The start piece has 8^3 . Find the piece that has $8 \cdot 8 \cdot 8$ and place it beside the first piece. Continue the pattern and have fun!

ACTIVITY 2:

Prime Factorization

Solve for n.

$$N \cdot 3 \cdot 7 \cdot 67 = 5,628$$

ACTIVITY 3:

The grocery store is having its grand opening. The first 150 customers will receive a free hat. Every 6th customer will receive a \$50.00 coupon and every 12th customer will receive a tote bag. How many customers will receive all three items? Show evidence of your answer.

ACTIVITY 4:

What is the LCM and GCF of the numbers with the prime factorization of $2^3 \cdot 7^2$ and $2^4 \cdot 5 \cdot 7$?

Extra Practice! Click on the websites to practice more with LCM, GCF and exponents.

<http://www.aaamath.com/fra66i-lcm.html>

<http://www.aaaknow.com/exp-eval-exp.htm>

CHECK YOUR ANSWERS!

ACTIVITY 1: Check your answers with the original dominoes card that you printed for the correct answers or use a calculator.

ACTIVITY 2: $N = 2^2$

ACTIVITY 3: This activity is dealing with the least common multiple.

6,12,18,24,30,36,42,48,54,60,66,72,78,84,90,96,102,108,114,120,126,132,138,144,150

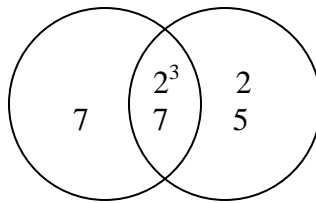
12,24,36,48,60,72,84,96,108,120,132,144

There are twelve pairs of common multiples so twelve customers would be getting all three items.

ACTIVITY 4:

$$2^3 \cdot 7^2 = 392$$

$$2^4 \cdot 5 \cdot 7 = 560$$



$$\text{LCM: } 2^4 \cdot 5 \cdot 7^2 = 3,920$$

$$\text{GCF: } 2^3 \cdot 7 = 56$$

Remember to use the order of operations when multiplying to determine the LCM and GCF.

ACTIVITY 1: DOMINOES CARD

| | | | | | |
|--------|--------|--------------|---------|---------|-----------|
| 17^2 | 10^2 | 10 · 10 | 6^2 | 50 · 50 | STOP |
| 8^2 | 3^2 | 3 · 3 | 17 · 17 | 32 · 32 | 50^2 |
| 15^2 | 4^3 | 4 · 4 · 4 | 8 · 8 | 1 | 32^2 |
| 5^2 | 7^2 | 7 · 7 | 15 · 15 | 1^3 | 5^0 |
| 4^2 | 10^3 | 10 · 10 · 10 | 25 | 20^2 | 1 · 1 · 1 |
| 4^1 | 2^2 | 2 · 2 | 4 · 4 | 3^3 | 400 |
| 11^2 | 5^3 | 125 | 4 | 9^2 | 3 · 3 · 3 |
| START | 8^3 | 8 · 8 · 8 | 11 · 11 | 36 | 81 |