# Pre-Algebra Workbook

Factors and multiples

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## DIVISIBILITY

■ 1. Is $369$ divisible by $3$?

■ 2. How can we determine if a number is divisible by $5$?

■ 3. "Divisibility" of whole numbers means we're looking at numbers that divide into a number _____.

■ 4. Is $245$ divisible by $7$?

■ 5. What is the smallest whole number larger than $20$ that's divisible by $2$ and $4$?

■ 6. What is the smallest whole number larger than $50$ that's divisible by both $3$ and $5$?

## MULTIPLES

1. List the first four multiples of $8$.

2. List the first five multiples of $40$.

3. Is $8$ a multiple of $8$? Why or why not?

4. What are two common multiples of $2$ and $3$?

5. What are two common multiples of $5$ and $10$?

6. The concept of multiples is related to the concept of _____.

## PRIME AND COMPOSITE

1. _____ numbers are numbers that are divisible by numbers other than $1$ and themselves.

2. Is $7$ a prime or composite number?

3. Is $15$ a prime or composite number?

4. $35$ is a composite number because it's divisible by which numbers?

5. $98$ is a composite number because it's divisible by which numbers?

6. By how many numbers will a prime number be divisible?

## PRIME FACTORIZATION AND PRODUCT OF PRIMES

■ 1. What is the prime factorization of $75$?

■ 2. What is the prime factorization of $55$?

■ 3. What is the prime factorization of $148$?

■ 4. The prime factorization of $156$ is $2 \cdot 2 \cdot 3 \cdot$ _____.

■ 5. The prime factorization of $63$ is $3 \cdot 3 \cdot$ _____.

■ 6. Prime factorization is when we break down a composite number into its factors until every factor is a _____ number.

## LEAST COMMON MULTIPLE

■ 1. Find the least common multiple of $3$ and $15$.

■ 2. Find the least common multiple of $16$ and $40$.

■ 3. Find the least common multiple of the set $\{36, 84\}$.

■ 4. Find the least common multiple of $12$ and $20$.

■ 5. If the prime factorization of one number is $2 \cdot 3 \cdot 5^2$, and the prime factorization of another is $2^3 \cdot 3$, what's the least common multiple of the two numbers?

■ 6. Is there only one possible pair of two numbers that can have a LCM of $20$? Give examples to support the answer.

## GREATEST COMMON FACTOR

■ 1. The greatest common factor of two numbers is the _____ number that divides evenly into both numbers.

■ 2. Find the greatest common factor of $100$ and $75$.

■ 3. Find the greatest common factor of the set $\{54, 162\}$.

■ 4. If one number has a prime factorization of $3 \cdot 5 \cdot 11$, while another has a prime factorization of $2 \cdot 3^2 \cdot 11^2$, what is their greatest common factor?

■ 5. If one number has a prime factorization of $2^4 \cdot 3 \cdot 11$, while another has a prime factorization of $2^3 \cdot 5$, What is their greatest common factor?

■ 6. Is there only one possible pair of two numbers that can have a GCF of $16$? Give examples to support the answer.

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