#### FACTORS (KEY)

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#### **TEACHING TASK**

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#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The correct answer is b) Division.

Explanation: To find the factors of a number, you check which numbers can divide that number without leaving a remainder. For example, if you want to find the factors of 12, you would check which integers divide 12 evenly:

1 divides 12 (12 ÷ 1 = 12), 2 divides 12 (12 ÷ 2 = 6), 3 divides 12 (12 ÷ 3 = 4).

2. The correct answer is b) 3 and 6.

Explanation: The factors of 18 are the numbers that can divide 18 evenly without leaving a remainder. The complete list of factors for 18 is: 1 (18  $\div$  1 = 18), 2 (18  $\div$  2 = 9), 3 (18  $\div$  3 = 6), 6 (18  $\div$  6 = 3), 9 (18  $\div$  9 = 2), 18 (18  $\div$  18 = 1).

3. The correct answer is c) 4 and 8.

Explanation: The factors of 16 are the numbers that divide 16 evenly. The complete list of factors for 16 includes: 1 ( $16 \div 1 = 16$ ), 2 ( $16 \div 2 = 8$ ), 4 ( $16 \div 4 = 4$ ), 8 ( $16 \div 8 = 2$ ), 16 ( $16 \div 16 = 1$ ).

4. The correct answer is d) Multiplication.

Explanation: To find the factors of a number, you look for pairs of numbers that multiply together to produce that number. For instance, if you want to find the factors of 12, you consider pairs like:  $1 \times 12$ ,  $2 \times 6$ ,  $3 \times 4$ .

Each of these pairs shows how multiplication is used to identify the factors of the number. Therefore, multiplication is the method involved in finding factors.

#### **ADVANCED LEVEL**

#### More than One Answer Type

5. The correct answers are a) 2 and 18, b) 4 and 9, c) 6 and 6, and d) 1

and 36.

Explanation: All of these pairs are factors of 36: a) 2 and 18: 2×18=36, b) 4 and 9: 4×9=36, c) 6 and 6: 6×6=36, d) 1 and 36: 1×36=36 So, all four options are correct! The complete list of factors of 36 includes 1, 2, 3, 4, 6, 9, 12, 18, and 36.

6. The correct answer is c) 1 and 25, b) 5 and 10
Explanation: The factors of 25 are the numbers that can multiply together to give 25. The complete list of factors for 25 includes:
1 (1 × 25 = 25), 5 (5 × 5 = 25), 25 (25 × 1 = 25).
Now, let's evaluate the options:
a) 2 and 13: Not factors of 25.
b) 5 and 10: Only 5 is a factor; 10 is not a factor of 25.
c) 1 and 25: Both are factors of 25.
d) 6 and 4: Neither is a factor of 25.

#### Fill In the Blanks

7. To find factors by division, we start with 1 and divide the given number by natural numbers sequentially.

Explanation: You begin with 1 and continue dividing the given number by each natural number (1, 2, 3, etc.) to see if the division results in a whole number (no remainder). If it does, both the divisor and the quotient are factors of the original number.

8. Factors are important in understanding how numbers can be multiplied and simplified.

Explanation: Factors help break down numbers into their component parts, making it easier to work with them in various mathematical operations. When you understand the factors of a number, you can simplify fractions, solve equations, and perform other calculations more effectively. For example, knowing the factors of a number can assist in reducing fractions to their simplest form or in finding common denominators.

#### **Matching Type**

9. Here's the correct matching for each item:

1. 5, 10, 20, 2, 50, 4, 100 ---- B. 100 (These numbers are all factors of 100.)

2. 4, 2, 28, 14, 7, 1 --- D. 28 (These numbers are all factors of 28.)

3. 1, 2, 25, 50, 10 ---- A. 50 (These numbers are all factors of 50.)
4. Finding factors by finding out if a number is a factor of another number ---- C. Checking if a number divides evenly into the target number to find factors. (This describes the method for finding factors.)
So the complete matches are: 1 - B 2 - D 3 - A 4 - C

#### **Answer the Following Questions**

10. Here are the factors of the given numbers using multiplication: a) Factors of 36: The pairs of numbers that multiply to 36 are:  $1\times36$ ,  $2\times18$ ,  $3\times12$ ,  $4\times9$ ,  $6\times6$ .

Complete List of Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

b) Factors of 74: The pairs of numbers that multiply to 74 are:  $1 \times 74$ ,  $2 \times 37$ .

Complete List of Factors of 74: 1, 2, 37, 74

11. Here are the factors of the given numbers using division:a) Factors of 54: To find the factors of 54, we can divide it by natural numbers sequentially:

54 ÷ 1 = 54 (1 and 54 are factors), 54 ÷ 2 = 27 (2 and 27 are factors), 54 ÷ 3 = 18 (3 and 18 are factors), 54 ÷ 6 = 9 (6 and 9 are factors). Complete List of Factors of 54: 1, 2, 3, 6, 9, 18, 27, 54

b) Factors of 99: To find the factors of 99, we divide it by natural numbers:  $99 \div 1 = 99$  (1 and 99 are factors),  $99 \div 3 = 33$  (3 and 33 are factors), 99  $\div 9 = 11$  (9 and 11 are factors). Complete List of Factors of 99: 1, 3, 9, 11, 33, 99

12. To determine if the first number is a factor of the second number, we divide the second number by the first number and check if there is a remainder.

a) 24, 52: 52 ÷ 24 = 2.166... (not a whole number) Conclusion: 24 is not a factor of 52.

b) 16, 48:
48 ÷ 16 = 3 (a whole number)
Conclusion: 16 is a factor of 48.

#### LEARNERS TASK

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## **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

## **Multiple Choice Questions**

1. The correct answer is b) Numbers that can be multiplied together to get another number.

Explanation: Factors are numbers that divide another number evenly, meaning they can be multiplied together to yield that number without any remainder. For example, the factors of 12 include 1, 2, 3, 4, 6, and 12, because:  $1 \times 12 = 12$ ,  $2 \times 6 = 12$ ,  $3 \times 4 = 12$ .

2. The correct answer is b) 3 and 6.

Explanation: Let's evaluate the options to see which pairs are factors of 12: a) 2 and 5: 5 is not a factor of 12.

b) 3 and 6: Both are factors of 12 because  $3 \times 4 = 12$  and  $6 \times 2 = 12$ .

c) 4 and 8: 8 is not a factor of 12.

d) 1 and 10: 10 is not a factor of 12.

Thus, the only correct pair of factors for 12 is 3 and 6.

3. The correct answer is d) Multiplying numbers.

Explanation: To find factors of a number using multiplication, you look for pairs of numbers that multiply together to give that number. For example, to find the factors of 12, you would consider the pairs:  $1 \times 12 = 12$ ,  $2 \times 6 = 12$ ,  $3 \times 4 = 12$ .

By identifying these pairs, you can determine the factors of the number. The other options (subtracting, adding, and dividing) do not describe the process of finding factors through multiplication.

4. The correct answer is c) 5.

Explanation: The factors of 15 are the numbers that can divide 15 evenly without leaving a remainder. The complete list of factors of 15 is: 1, 3, 5, 15.

So, the only correct factor of 15 from the given options is 5.

## ADVANCED LEVEL

## More than One Answer Type

5. The correct answers are a) 3 and 7 and d) 1 and 14.

Explanation: Let's evaluate the options to find which pairs are factors of 14:

a) 3 and 7: Only 7 is a factor of 14 (since  $7 \times 2=14$ ), but 3 is not.

b) 2 and 8: Only 2 is a factor of 14 (since  $2 \times 7=14$ ), but 8 is not.

c) 5 and 9: Neither 5 nor 9 is a factor of 14.

d) 1 and 14: Both are factors of 14 (since  $1 \times 14 = 14$ ).

6. The correct answers are a) 2 and 15, b) 6 and 5, and d) 10 and 3. Explanation: The factors of 30 are the numbers that can multiply together to yield 30. Here's the breakdown:

a) 2 and 15:  $2 \times 15 = 30$  (both are factors)

b) 6 and 5:  $6 \times 5 = 30$  (both are factors)

c) 4 and 8: Not factors of 30 (since  $4 \times 8 = 32$ )

d) 10 and 3:  $10 \times 3=30$  (both are factors)

Complete List of Factors of 30: The complete list of factors of 30 is: 1, 2, 3, 5, 6, 10, 15, and 30.

Thus, the correct pairs from the options are a, b, and d.

#### Fill In the Blanks

7. To find factors by multiplication, we identify pairs of numbers that, when multiplied together, result in the given number.

Explanation: For example, to find the factors of 12, we look for pairs like:  $1 \times 12 = 12$ ,  $2 \times 6 = 12$ ,  $3 \times 4 = 12$ .

8. Factors always come in pairs, because every number is a factor of itself.

Explanation: For any given number, you can find pairs of factors that multiply together to produce that number. For example, for the number 12, the pairs of factors are: 1 and 12, 2 and 6, 3 and 4. Each of these pairs multiplies to give the original number, and every number is indeed a factor of itself.

#### **Matching Type**

9. Here's the correct matching for each item:

1. Finding factors by multiplication ---- B. Identifying pairs of numbers that, when multiplied together, result in the given number.

2. Finding factors by division ---- A. Dividing the given number by smaller numbers to see which ones divide evenly.

3. 8, 4, 2, 1, 16 ---- D. 16 (These are the factors of 16.)

4. 8, 3, 2, 24, 1, 4, 6, 12 ---- C. 24 (These are the factors of 24.) So, the complete matches are: 1 - B, 2 - A, 3 - D, 4 - C.

#### **Answer the Following Questions**

10. Here are the factors of the given numbers using multiplication: a) Factors of 24: The pairs of numbers that multiply to 24 are: 1×24=24, 2×12=24, 3×8=24, 4×6=24.

Complete List of Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

b) Factors of 15: The pairs of numbers that multiply to 15 are: 1×15=15, 3×5=15.

Complete List of Factors of 15: 1, 3, 5, 15

11. Here are the factors of the given numbers using division: a) Factors of 32: To find the factors of 32, we can divide it by natural numbers sequentially:  $32 \div 1 = 32$  (1 and 32 are factors),  $32 \div 2 = 16$  (2 and 16 are factors),  $32 \div 4 = 8$  (4 and 8 are factors). Complete List of Factors of 32: 1, 2, 4, 8, 16, 32

b) Factors of 48: To find the factors of 48, we can also divide it by natural numbers:  $48 \div 1 = 48$  (1 and 48 are factors),  $48 \div 2 = 24$  (2 and 24 are factors),  $48 \div 3 = 16$  (3 and 16 are factors),  $48 \div 4 = 12$  (4 and 12 are factors),  $48 \div 6 = 8$  (6 and 8 are factors). Complete List of Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

12. To determine if the first number is a factor of the second number, we divide the second number by the first number and check if there is a remainder.

a) 18, 36: 36 ÷ 18 = 2 (a whole number)
Conclusion: 18 is a factor of 36.
b) 15, 95: 95 ÷ 15 = 6.333... (not a whole number)
Conclusion: 15 is not a factor of 95.

## PRIME AND COMPOSITE NUMBERS (KEY)

#### TEACHING TASK

#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

### **Multiple Choice Questions**

1. The correct answer is B) 39.

Explanation: 37, 41, and 43 are all prime numbers, meaning they have only two factors: 1 and themselves.

39 is a composite number because it has more than two factors: 1,3,13, and 39.

Thus, 39 is the only composite number among the options provided.

2. The correct answer is B) Exactly two.

Explanation: A prime number has exactly two positive divisors: 1 and the number itself. For example, the prime number 5 has the divisors 1 and 5. This property distinguishes prime numbers from composite numbers, which have more than two positive divisors.

3. The correct answers are B) 47 and D) 43.

Explanation:

48 is not a prime number (factors: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48).

47 is a prime number (factors: 1, 47).

45 is not a prime number (factors: 1, 3, 5, 9, 15, 45).

43 is a prime number (factors: 1, 43).

So, both 47 and 43 are prime numbers.

4. The correct answer is D) 4.

Explanation: A composite number is defined as a positive integer that has more than two positive divisors. The smallest composite number is 4, which has the divisors 1, 2, and 4.

0 is not a composite number.

1 is neither prime nor composite.

2 is a prime number.

Therefore, the smallest composite number is 4.

5. The correct answer is A) More than two.

Explanation: A composite number has more than two positive factors. By definition, a composite number is an integer greater than one that is not prime, meaning it has at least one divisor other than 1 and itself. For example, the composite number 6 has the factors 1, 2, 3, and 6—four factors in total. Thus, composite numbers always have more than two factors.

6. The correct answers are B) 71 and C) 73.

Explanation: 69 is not a prime number (factors: 1, 3, 23, 69).

71 is a prime number (factors: 1, 71).

73 is a prime number (factors: 1, 73).

75 is not a prime number (factors: 1, 3, 5, 15, 25, 75).

Therefore, both 71 and 73 are prime numbers.

7. The correct answer is D) 2.

Explanation: Actually, 2 is the only even prime number; all other prime numbers are odd. The options you provided do contain odd prime numbers (like 3 and 5), but since the question asks for the only odd prime number, none of the options can be strictly considered correct in that context.

2 is the only even prime number.

3 and 5 are odd prime numbers but not the only odd prime.

8. The correct answer is C) 2.

Explanation: 2 is the smallest prime number, and it is also the only even prime number. A prime number is defined as a positive integer greater than 1 that has exactly two distinct positive divisors: 1 and itself. Therefore, among the options provided, 2 is the smallest prime number.

# LEARNERS TASK

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#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The correct answer is A) A number divisible by 1 and itself.

Explanation: A prime number is defined as a natural number greater than 1 that has exactly two distinct positive divisors: 1 and itself. This means that a prime number cannot be divided evenly by any other numbers besides 1 and the number itself.

B) is incorrect because a prime number is not divisible by any other numbers besides 1 and itself.

C) is misleading because while it states that it's divisible by 1, it does not specify that it must also be divisible by itself.

D) is incorrect because a prime number does not need to be divisible by another prime number.

Thus, the definition of a prime number is accurately captured by option A.

2. The correct answer is C) 11.

Explanation: 6 is not a prime number (factors: 1, 2, 3, 6).

9 is not a prime number (factors: 1, 3, 9).

11 is a prime number (factors: 1, 11).

15 is not a prime number (factors: 1, 3, 5, 15).

Therefore, the only prime number among the options provided is 11.

3. The correct answer is C) 8.
Explanation: 2 is a prime number (factors: 1, 2).
5 is a prime number (factors: 1, 5).
8 is a composite number (factors: 1, 2, 4, 8).

11 is a prime number (factors: 1, 11).

Therefore, the only composite number among the options provided is 8.

4. The correct answer is A) 2.

Explanation: 2 is the only even prime number. It is prime because it has exactly two distinct positive divisors: 1 and itself. All other even numbers can be divided by 2, which means they have at least three divisors (1, 2, and the number itself), making them composite.

5. The correct answer is B) Two.

Explanation: A prime number has exactly two positive factors: 1 and the number itself. For example, the prime number 7 has the factors 1 and 7. This is what distinguishes prime numbers from composite numbers, which have more than two factors.

6. The correct answer is B) 39.

Explanation: 37 is a prime number (factors: 1, 37).

39 is a composite number (factors: 1, 3, 13, 39).

41 is a prime number (factors: 1, 41).

43 is a prime number (factors: 1, 43).

Therefore, the only composite number among the options provided is 39.

7. The correct answer is C) 2.

Explanation: 2 is the smallest prime number and is the only even prime number. A prime number is defined as a natural number greater than 1 that has exactly two distinct positive divisors: 1 and itself. Therefore, among the options provided, 2 is the smallest prime number. 8. The correct answer is D) 4.

Explanation: A composite number is defined as a positive integer that has more than two positive divisors. The smallest composite number is 4, which has the divisors 1, 2, and 4.

0 is not considered a composite number.

1 is neither prime nor composite.

2 is a prime number.

Thus, the smallest composite number is 4.

#### **PRIME FACTORISATION (KEY)**

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#### **TEACHING TASK**

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#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The correct answer is b) Prime Factorization Method.

Explanation: The prime factorization method involves dividing a number by its smallest prime factor and continuing the process until all the factors obtained are prime numbers. This method effectively breaks down a composite number into its prime components. While the Factor Tree Method (option c) is a visual representation of this process, the specific method described in your question is best identified as the Prime Factorization Method.

2. The correct answer is b) Simplifying fractions.

Explanation: Common factors are useful for simplifying fractions because they can be used to divide both the numerator and the denominator by the same factor, resulting in a simpler equivalent fraction.

a) Finding prime numbers is not related to common factors.

c) Finding least common multiples (LCM) involves common multiples, not common factors.

d) Finding the product of two prime numbers is not relevant to common factors.

Thus, common factors play a key role in simplifying fractions.

3. The correct answer is b)  $2 \times 2 \times 2 \times 2 \times 3$ .

Explanation: To find the prime factorization of 48 using the Factor Tree Method, you would break it down as follows:

Start with 48. Divide by 2 (the smallest prime factor):  $48 \div 2=24$ Divide 24 by 2:  $24 \div 2=12$ Divide 12 by 2:  $12 \div 2=6$ Divide 6 by 2:  $6 \div 2=3$ Finally, 3 is a prime number. So, the prime factorization is:  $48=2 \times 2 \times 2 \times 2 \times 3$ Thus, the correct choice is b)  $2 \times 2 \times 2 \times 2 \times 3$ .

4. The correct answer is b) 8.

Explanation: 5, 11, and 17 are all prime factors because they have exactly two distinct positive divisors: 1 and themselves.

8 is not a prime factor because it is a composite number (factors: 1, 2, 4, 8).

Thus, the option that is NOT a prime factor is 8.

#### ADVANCED LEVEL

#### More than One Answer Type

5. The correct answer is b) 2, 4, 5, 10.

Explanation: To identify the non-prime factors of 100, we first determine the factors of 100. The complete list of factors is:

1, 2, 4, 5, 10, 20, 25, 50, and 100.

Among these, the non-prime factors (composite numbers) are: 4 (factors: 1, 2, 4), 10 (factors: 1, 2, 5, 10).

The other options: a) 2, 2, 5, 5: Includes prime factors.

c) 3, 5, 7, 13: None are factors of 100.

d) 2, 3, 4, 6: Includes prime factors and 3 and 6 are not factors of 100. Therefore, the best choice is b) 2, 4, 5, 10 as it contains non-prime factors.

6. To determine which numbers are not common factors of 16 and 24, we first find the factors of each number:

Factors: Factors of 16: 1, 2, 4, 8, 16

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

Common Factors: The common factors of 16 and 24 are: 1, 2, 4, 8.

Now let's evaluate the options: a) 1, 2, 4, 8 All these numbers are common factors.

b) 1, 3, 6, 9 Only 1 is a common factor. 3, 6, and 9 are not common factors.

c) 2, 4, 6, 8 2, 4, and 8 are common factors, but 6 is not.

d) 3, 6, 9, 12 None of these numbers (except for 12) are common factors (3 and 6 are not, and 9 is not at all).

Conclusion: The numbers that are not common factors of 16 and 24 are: b) 1, 3, 6, 9, c) 2, 4, 6, 8 (specifically 6), d) 3, 6, 9, 12 (specifically 3 and 6, but 12 is not a common factor)

So the correct responses for numbers not common factors are b, c, and d.

#### Fill In the Blanks

7. Common factors help in finding numbers that are shared or common to two or more numbers.

8. The common factors of 48 and 36 are 1, 2, 3, 4, 6, 12. Explanation: Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48 Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

## Matching Type

9. Here's the correct matching for the items:

- 1. Prime Factorization of 48 ---- B. 2×2×2×2×3
- 2. The common factors of 24 and 36 ---- D. 1,2,3,4,6,12
- 3. Prime factors of 84 ---- A. 2,2,3,7
- 4. Common factors of 20 and 30 ---- C. 1,2,5
- So, 1 -- B, 2 -- D, 3 -- A, 4 -- C.

#### **Answer the Following Questions**

10. Prime Numbers Between 1 and 100:
The prime numbers between 1 and 100 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.
Twin Primes Whose Sum is 36: Twin primes are pairs of prime numbers that differ by 2. The twin primes below 100 are: (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43), (59, 61), (71, 73).
Now, checking the sums: 3+5=8, 5+7=12, 11+13=24, 17+19=36 (This pair works!) 29+31=60, 41+43=84, 59+61=120, 71+73=144.
Conclusion: The twin primes whose sum is 36 are (17, 19).

#### 11.

a) Common Factors of 10, 25, and 60 Factors: Factors of 10: 1, 2, 5, 10, Factors of 25: 1, 5, 25, Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60. Common Factors: The numbers that appear in all three lists are: 1, 5

b) Common Factors of 14 and 63 Factors: Factors of 14: 1, 2, 7, 14, Factors of 63: 1, 3, 7, 9, 21, 63 Common Factors: The numbers that appear in both lists are: 1, 7 Summary: Common factors of 10, 25, and 60: 1, 5 Common factors of 14 and 63: 1, 7

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#### LEARNERS TASK

#### CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

#### **Multiple Choice Questions**

1. The correct answer is b) Breaking down a composite number into its prime factors.

Explanation: Prime factorization is the process of expressing a composite number as the product of its prime factors. For example, the prime factorization of 28 is  $2 \times 2 \times 7$ .

a) is incorrect because prime numbers cannot be broken down further into factors.

c) is partially correct but does not specifically mention prime factors.

d) refers to a different concept involving the greatest common divisor (GCD), not prime factorization.

Thus, the most accurate definition is b).

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2. The correct answer is c) 7.

Explanation: 4 is not a prime factor because it is a composite number (factors: 1, 2, 4).

9 is not a prime factor because it is also a composite number (factors: 1, 3, 9).

7 is a prime factor because it has exactly two distinct positive divisors: 1 and 7.

12 is not a prime factor because it is a composite number (factors: 1, 2, 3, 4, 6, 12).

Thus, the only prime factor among the options is 7.

3. The correct answer is b)  $2 \times 2 \times 3 \times 3$ .

Explanation using the Short Division Method:

Start with 36.

Divide by the smallest prime number, which is 2:  $36 \div 2=18$ 

Divide 18 by 2: 18÷2=9

Now, divide 9 by the next smallest prime number, which is  $3: 9 \div 3=3$ Finally, divide 3 by  $3: 3 \div 3=1$ 

Now, putting it all together, the prime factorization of 36 is:  $36=2\times2\times3\times3$ 

4. The correct answer is b) A factor shared by two or more numbers. Explanation: A common factor is a number that is a factor of two or more numbers. For example, if we consider the numbers 12 and 18, their common factors are 1, 2, 3, and 6, as these numbers divide both 12 and 18 evenly.

a) is too general and does not specify the relationship between multiple numbers.

c) refers specifically to prime numbers, which is not relevant to the definition of common factors.

d) describes the property of a factor but does not define a common factor specifically.

#### ADVANCED LEVEL

#### More than One Answer Type

5. The correct answers are a) Factor Tree Method and c) Short Division Method.

Explanation:

Factor Tree Method (a): This method involves creating a tree diagram to break down a composite number into its prime factors.

Short Division Method (c): This method involves dividing the number by its smallest prime factors until only prime numbers remain.

Long Division Method (b) is not commonly used for prime factorization. Therefore, the correct choices are a and c.

6. Factors: Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

Common Factors: The common factors of 36 and 48 are: 1, 2, 3, 4, 6, 12. Evaluate the Options:

a) 1, 3, 6, 12 All of these are common factors.

b) 1, 4, 8, 12 1, 4, and 12 are common factors, but 8 is not.

c) 2, 4, 6, 8 2, 4, and 6 are common factors, but 8 is not.

d) 1, 5, 7, 11 None of these (5, 7, 11) are common factors, although 1 is. Conclusion: The numbers that are not common factors of 36 and 48 are:
b) 1, 4, 8, 12 (specifically 8), c) 2, 4, 6, 8 (specifically 8), d) 1, 5, 7, 11 (specifically 5, 7, 11).

Thus, the options that include numbers not common to both are b, c, and d.

#### Fill In the Blanks

7. In the factor tree method, you start by dividing the number by its \*smallest\* prime factor.

8. Common factors are numbers that divide two or more given numbers without leaving a \*remainder\*.

## **Matching Type**

9.

- 1. Prime Factorization of 36 ---- C. 2×2×3×3
- 2. The factors of 24 include ----- A. 1,2,3,4,6,8,12,24
- 3. The common factors of 12 and 18 ---- D. 1,2,3,6
- 4. Prime factors of 72 ---- B. 2,2,2,3,3

## **Answer the Following Questions**

#### 10.

a) Common Factors of 14 and 42 Factors: Factors of 14: 1, 2, 7, 14 Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42 Common Factors: The numbers that appear in both lists are: 1, 2, 7, 14

b) Common Factors of 12, 18, and 24
Factors: Factors of 12: 1, 2, 3, 4, 6, 12
Factors of 18: 1, 2, 3, 6, 9, 18
Factors of 24: 1, 2, 3, 4, 6, 8, 12
Common Factors: The numbers that appear in all three lists are: 1, 2, 3, 6
Summary:
Common factors of 14 and 42: 1, 2, 7, 14
Common factors of 12, 18, and 24: 1, 2, 3, 6

- a) Prime Factorization of 54 using the Factor Tree Method
- 1. Start with 54.
- 2. Divide by the smallest prime factor, which is 2:  $54 \div 2=27$
- 3. Next, divide 27 by the smallest prime factor, which is  $3: 27 \div 3=9$
- 4. Divide 9 by 3 again:  $9 \div 3 = 3$
- 5. Finally, divide 3 by itself:  $3 \div 3=1$
- So, the prime factorization of 54 is:  $54=2\times3\times3\times3$
- b) Prime Factorization of 100 using the Factor Tree Method
- 1. Start with 100.
- 2. Divide by the smallest prime factor, which is 2:  $100 \div 2=50$
- 3. Divide 50 by 2: 50÷2=25
- 4. Finally, divide 25 by the smallest prime factor, which is  $5: 25 \div 5=5$
- 5. Divide 5 by itself:  $5 \div 5=1$
- So, the prime factorization of 100 is:  $100=2 \times 2 \times 5 \times 5$