

Warmup

1. Determine if each is a prime or composite number:

5: _____

14: _____

7: _____

2.

$$+4 - -8 =$$

$$+4 + -8 =$$

$$-4 - -8 =$$

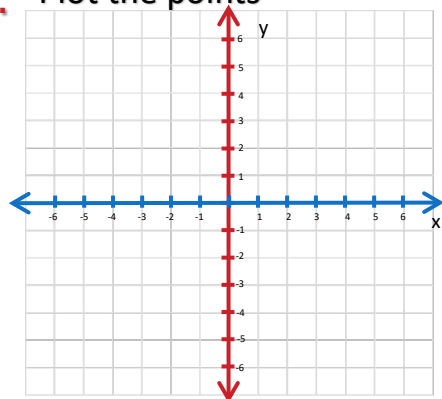
$$-4 + -8 =$$

3.

Solve and Check

$$\frac{z}{1.5} = 12$$

4. Plot the points



5. Write the next three terms in the sequence

12, 9, 6, _____, _____, _____

The sequence is ☐ arithmetic ☐ geometric ☐ neither

The common difference is _____

The common difference in an arithmetic sequence can be a negative number

6. $2 \cdot 2 \cdot 2 \cdot 2$ in exponential form is _____

7. $2 \cdot 3 \cdot 2 \cdot 3 \cdot 2 \cdot 2 = \text{_____} \cdot \text{_____}$

I. Prime Numbers

A prime number is a number that has _____, they are _____

A composite number is a number that has _____

8. Circle **all** of the prime numbers.

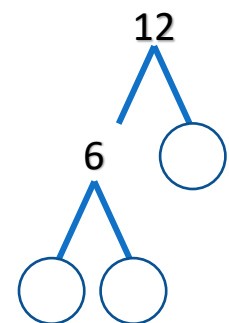
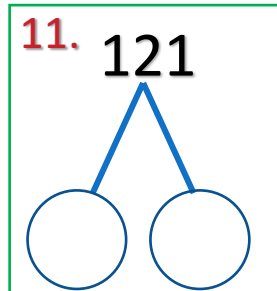
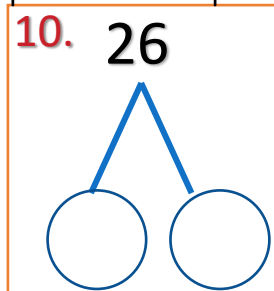
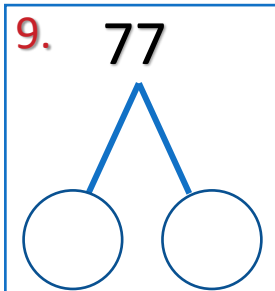
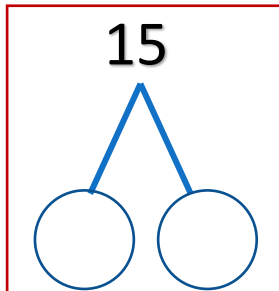
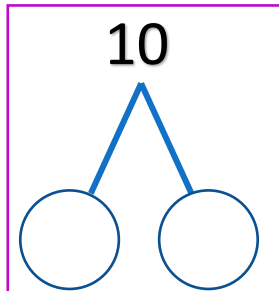
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

II. Prime Factorization – Using Factor Trees

Prime Factorization:

Write answers as a product of exponents

Use the factor tree to factor each number into a product of prime numbers.



Often the first factors chosen are composite. Keep factoring composite numbers until you are left with all prime numbers.

Write the answer as a product of exponents

Prime Factorization (Tree Method):

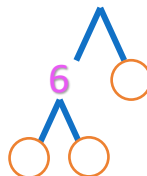
1. Choose any two factors of the number

18

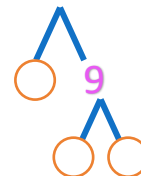
2. Circle prime numbers

18

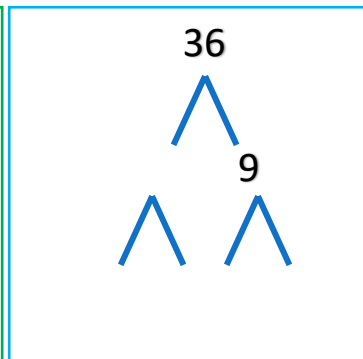
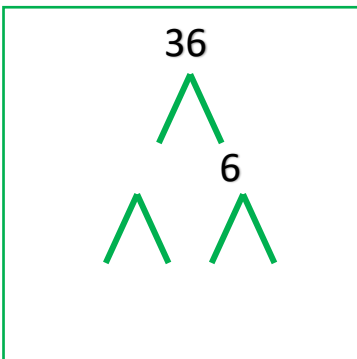
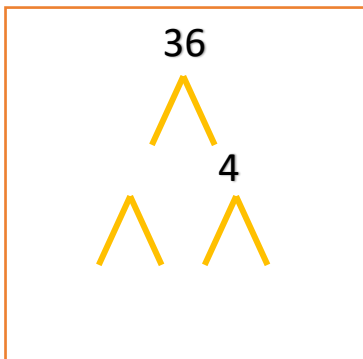
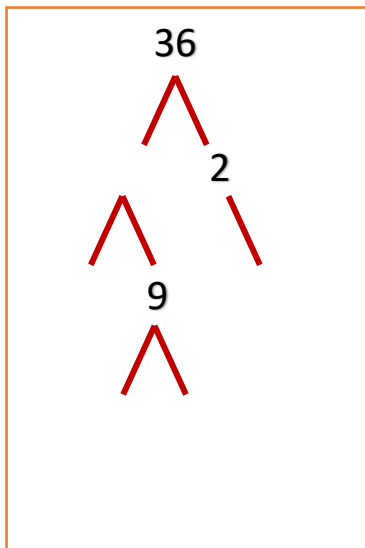
3. Continue factoring composite numbers



4. When all the numbers are prime, write the factors as a product of exponents.

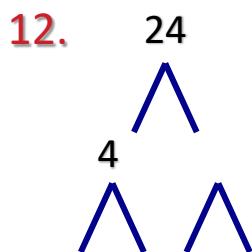


_____ . _____



The prime factorization of 36 is _____ written with exponents is _____

The prime factorization will always be the same.
To check the answer, choose different starting factors.



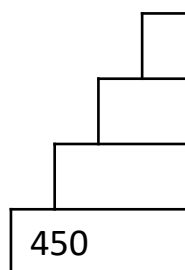
13.

III. Prime Factorization – Using prime factor division

Divide only by Prime Numbers

Find the prime factorization of 36 using the division method.

Prime Factorization (Division Method):



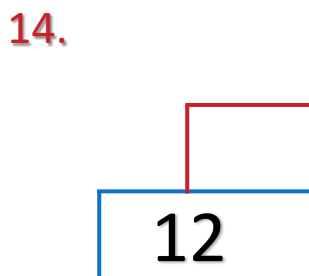
If it is an even number, divide by 2

If it ends in 0 or 5, divide by 5

If the sum of the digits are a multiple of 3, divide by 3

Wait until the end to determine if it is divisible by 7, 11, 13, and the larger prime numbers.

Use Divisibility Tests



15.

IV. Factoring with Variables

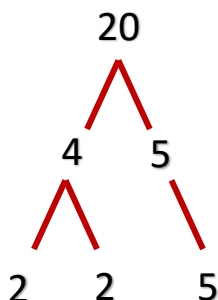
Prime Factorization

(with Variables)

Factor $20pq$

1. Factor the number
 $2 \cdot 2 \cdot 5$

2. Factor the Variable(s)
 $p \cdot q$



Factor $8x^2y^3$

16. Factor $10az$

17. Factor $6ab^2$

IV. Practice

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