6.7A Prime Factorization

(7) Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

prime number – a whole number that has exactly two factors, 1 and itself.

composite number – a number greater than 1 with more than two factors.

factors - numbers that you multiply together to get another number.

factor strings – repeated multiplication by the same factor

exponential notation – used for writing repeated multiplication more efficiently through the use of bases and exponents.

factor tree – an organized diagram used for listing out pairs of factors of a number until reaching the prime factors of a number.

Prime and Composite Numbers - the prime numbers are circled, the composite numbers are not circled

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	26	27	28	㉙	30
㉛	32	33	34	35	36	�37	38	39	40
㊶	42	㊸	44	45	46	㊼	48	49	50
51	52	㊾	54	55	56	57	58	㊾	60
㊶	62	63	64	65	66	㊻	68	69	70
㋀	72	㋂	74	75	76	77	78	㋆	80
81	82	㋄	84	85	86	87	88	㊨	90
91	92	93	94	95	96	㊼	98	99	100

My teacher's learning goals for me are that I will be able to:

- Build a **factor tree** to calculate the **prime factors** of any composite number.
- Generate **equivalent expressions**
  - using **factor strings.**
  - using exponential notation.
- Calculate the **composite value** when given a **factor string** or exponential notation.

I will master the **learning goals** for **Prime Factorization** with at least _____ mastery by:

1) **Asking** questions when I'm not sure of something and **answering** questions when I know the answer.

2) _____

   _____

3) _____

   _____

_____are either prime or composite.

_____and _____ are neither prime nor composite.

Every **composite number** can be written as a **product of prime numbers.**

Prime Factorization I do…and you follow along and process

A.   52

Factor String:

Exponential Notation:

B.   105

Factor String:

Exponential Notation:

C.   -360

Factor String:

Exponential Notation:

D.   -216

Factor String:

Exponential Notation:

When the composite number that is being factored is <u>negative,</u> **you must first factor out the negative 1 (put a triangle around it).** In doing this, the number that you are now calculating the prime factorization for is positive.