

# Today's Plan:

**Learning Target (standard):** I will create prime factorization trees and use them to write the prime factorization of integers.

**Students will:** Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

**Teacher will:** Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

**Assessment:** Board work, homework check and homework assignment

**Differentiation:** Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME \_\_\_\_\_

$f(-1) = 2^{-1}$      $f(0) = 2^0$

$f(-1) = \frac{1}{2}$      $f(1) = 2^1$

$f(2) = 2^2$

1.) Graph the exponential function  $f(x) = 2^x$

x	-1	0	1	2
y	$\frac{1}{2}$	1	2	4

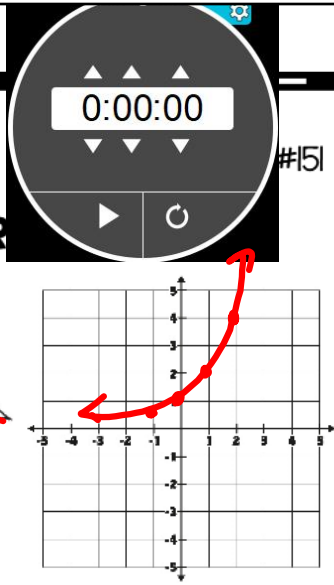
$f(2) = 2^2$

2.) Solve  $-2x < -8$

$x > 4$      $\{x | x > 4\}$

3.) Solve  $(2x)^2$  when  $x = 2$

$(2 \cdot 2)^2 = 4^2 = 16$



#151

11) Hits in a Round of Hacky Sack

Hits	Frequency
2	2
3	2
4	1
5	4
6	3
10	1
13	1
19	1

Find the mean, median,  
mode & range.

2 2 3 3 4 5 5 5 5 6 6 6 6 10 13 19

$$\text{mean} = \frac{94}{15} = 6.267 \text{ hits}$$

$$\text{median} = 5 \text{ hits}$$

$$\text{mode} = 5 \text{ hits}$$

$$\text{range} = 17 \text{ hits}$$

$$19 - 2 = 17$$

Simplify.

$$\sqrt{100} = \sqrt{10 \cdot 10}$$

$$= 10$$

$$1^2 = 1$$

$$2^2 = 4$$

$$3^2 = 9$$

$$4^2 = 16$$

$$5^2 = 25$$

$$6^2 = 36$$

$$7^2 = 49$$

$$8^2 = 64$$

$$9^2 = 81$$

$$10^2 = 100$$

$$11^2 = 121$$

$$12^2 = 144$$

$$13^2 = 169$$

$$14^2 = 196$$

$$15^2 = 225$$

$$16^2 = 256$$

$$17^2 = 289$$

$$18^2 = 324$$

$$19^2 = 361$$

$$20^2 = 400$$

Simplify.

$$\begin{aligned}\sqrt{400} &= \sqrt{20 \cdot 20} \\ &= 20\end{aligned}$$

Simplify.

$$\begin{aligned}\pm \sqrt{\frac{121}{25}} &= \sqrt{\frac{11 \cdot 11}{5 \cdot 5}}, -\sqrt{\frac{11 \cdot 11}{5 \cdot 5}} \\ &= \frac{11}{5}, -\frac{11}{5}\end{aligned}$$

Simplify.

$$\begin{aligned} -\sqrt{\frac{1}{256}} &= -\sqrt{\frac{1 \cdot 1}{16 \cdot 16}} \\ &= -\frac{1}{16} \end{aligned}$$

Simplify.

$$\begin{aligned} \sqrt{\frac{225}{49}} &= \sqrt{\frac{15 \cdot 15}{7 \cdot 7}} \\ &= \frac{15}{7} \end{aligned}$$

Simplify.

$$\begin{aligned}\pm\sqrt{\frac{144}{441}} &= \sqrt{\frac{12 \cdot 12}{21 \cdot 21}}, -\sqrt{\frac{12 \cdot 12}{21 \cdot 21}} \\ &= \frac{12}{21}, -\frac{12}{21} \\ &= \frac{4}{7}, -\frac{4}{7}\end{aligned}$$

Simplify.

$$\begin{aligned}\sqrt{\frac{18 \div 2}{32 \div 2}} &= \sqrt{\frac{9}{16}} = \sqrt{\frac{3 \cdot 3}{4 \cdot 4}} \\ &= \frac{3}{4}\end{aligned}$$

Simplify.

$$\sqrt{\frac{99 \div 11}{44 \div 11}} = \sqrt{\frac{9}{4}} = \sqrt{\frac{3 \cdot 3}{2 \cdot 2}} = \frac{3}{2}$$

Simplify.

$$-\sqrt{\frac{175 \div 7}{28 \div 7}} = -\sqrt{\frac{25}{4}} = -\sqrt{\frac{5 \cdot 5}{2 \cdot 2}} = -\frac{5}{2}$$

Simplify.

$$\begin{aligned}\pm\sqrt{\frac{7}{175}} &\stackrel{\div 7}{=} \pm\sqrt{\frac{1}{25}} \\ &= \sqrt{\frac{1 \cdot 1}{5 \cdot 5}}, -\sqrt{\frac{1 \cdot 1}{5 \cdot 5}} \\ &= \frac{1}{5}, -\frac{1}{5}\end{aligned}$$

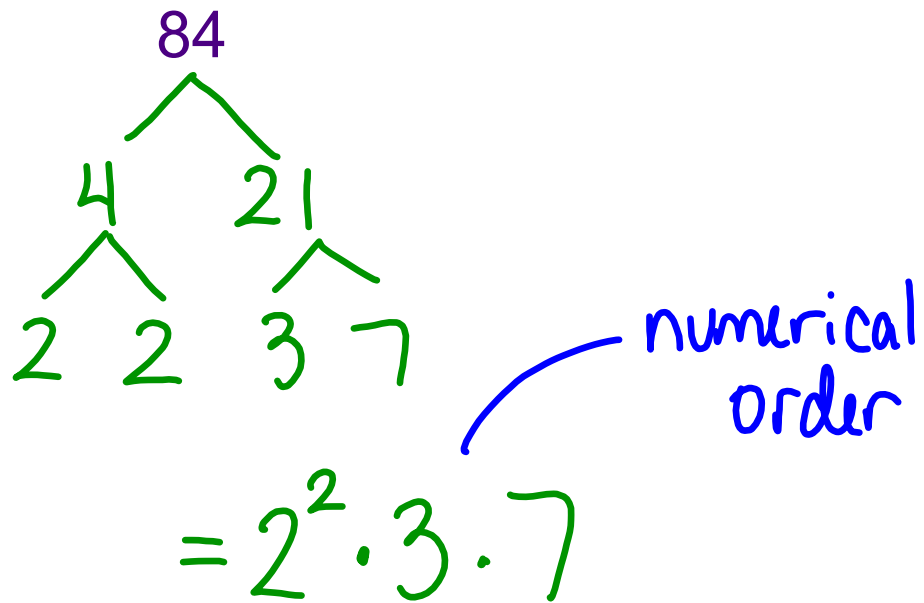
Prime Factorization:

- write a given number as a product of prime numbers

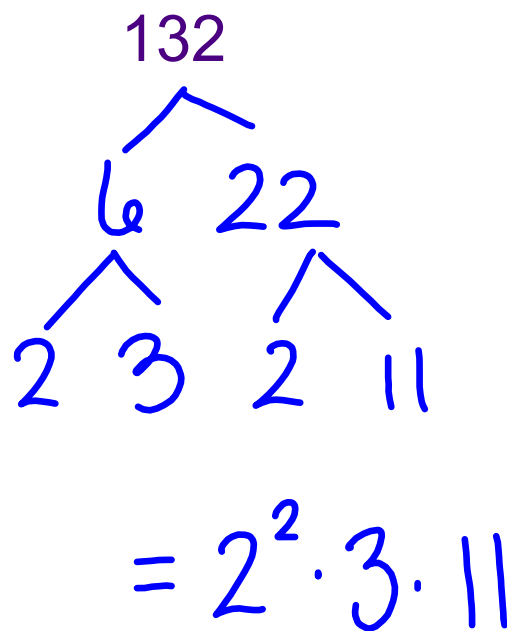
1,2,3,5,7,11,13,17,19,23,...

**Composite Number** - a number that can be written as a product of prime numbers

Create a prime factorization tree.



Create a prime factorization tree.





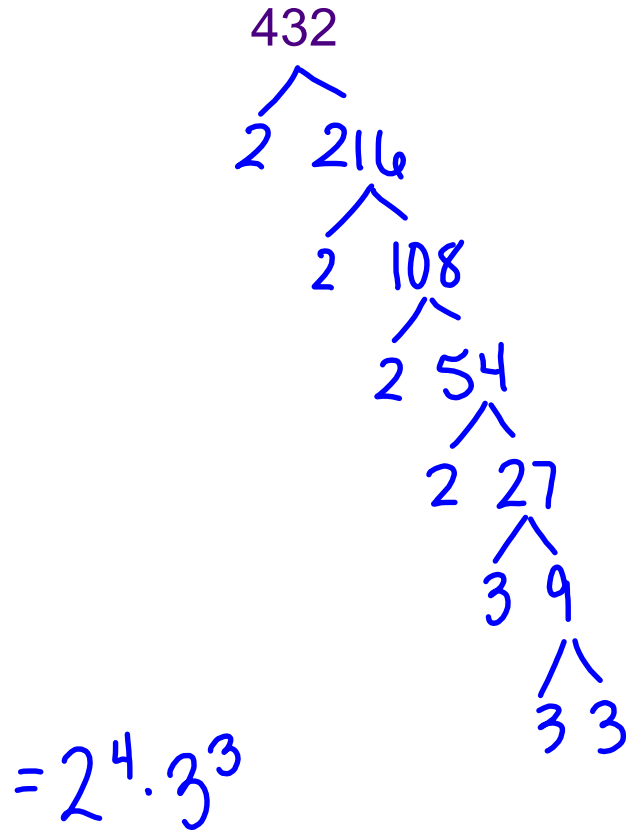
Create a prime factorization tree.

$$\begin{array}{c} 210 \\ \wedge \\ 7 \quad 30 \\ \quad \wedge \\ \quad 2 \quad 15 \\ \quad \quad \wedge \\ \quad \quad 3 \quad 5 \\ \\ = 2 \cdot 3 \cdot 5 \cdot 7 \end{array}$$

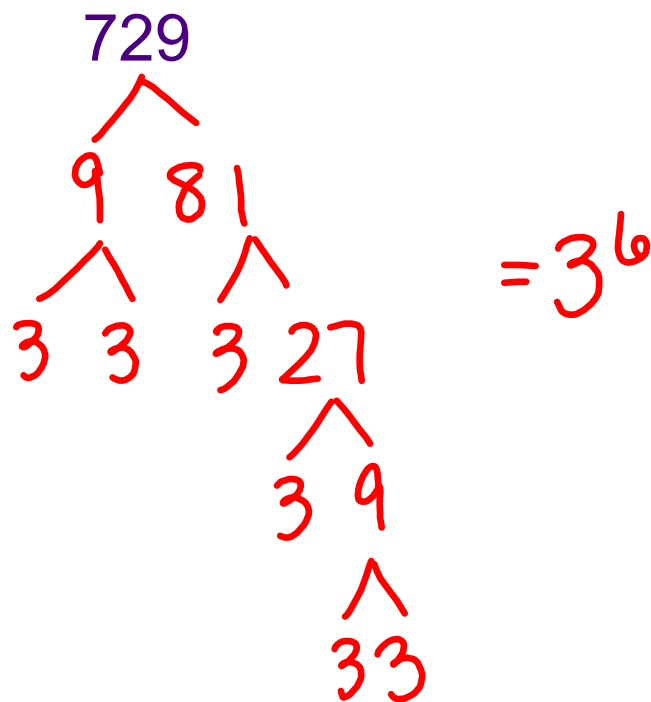
Create a prime factorization tree.

$$\begin{array}{c} 175 \\ \wedge \\ 7 \quad 25 \\ \quad \wedge \\ \quad 5 \quad 5 \\ \\ = 5^2 \cdot 7 \end{array}$$

Create a prime factorization tree.



Create a prime factorization tree.



Create a prime factorization tree.

$$\begin{array}{c} 833 \\ \swarrow \quad \searrow \\ 7 \quad 119 \\ \quad \swarrow \quad \searrow \\ \quad 7 \quad 17 \\ \\ = 7^2 \cdot 17 \end{array}$$

Assignment:

Prime Factorization

#1-10