PRIME AND COMPOSITE NUMBERS

- Prime Numbers: Can only be divided by 1 and themselves (STINGY)
- Composite Numbers: Allow other numbers divide them (GENEROUS NUMBERS)

0

too generous

neither

1

too stingy

LEAD

PRIME AND COMPOSITE NUMBERS

CHALLENGE!!!

Circle the prime numbers and underline the composite numbers in the set below;

7 4 9 2 13 12 25 3 33 75 8 60

FACTORS AND MULTIPLES

factors: smaller versions of numbers

MULTIPLES: BIGGER VERSIONS OF NUMBERS

factors		MULTIPLES
	6	
	24	
	30	
	100	

- Can a number have an odd number of factors?

FACTORS AND MULTIPLES

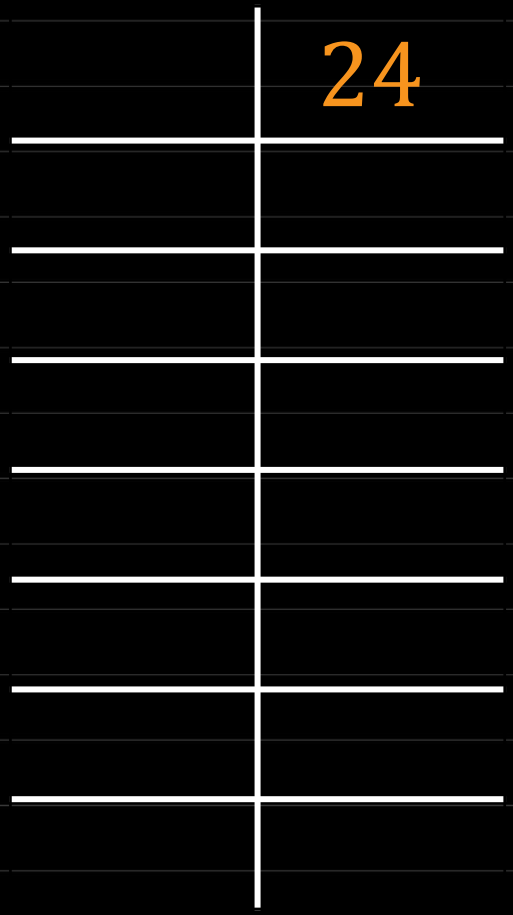
1. List the factors of 18
2. What are the first ten multiples of 12?
3. What are the prime factors of 24?
4. List ten multiples of 11
5. How many factors has 99?
6. What are the common factors of $15, 30\ and\ 60$?

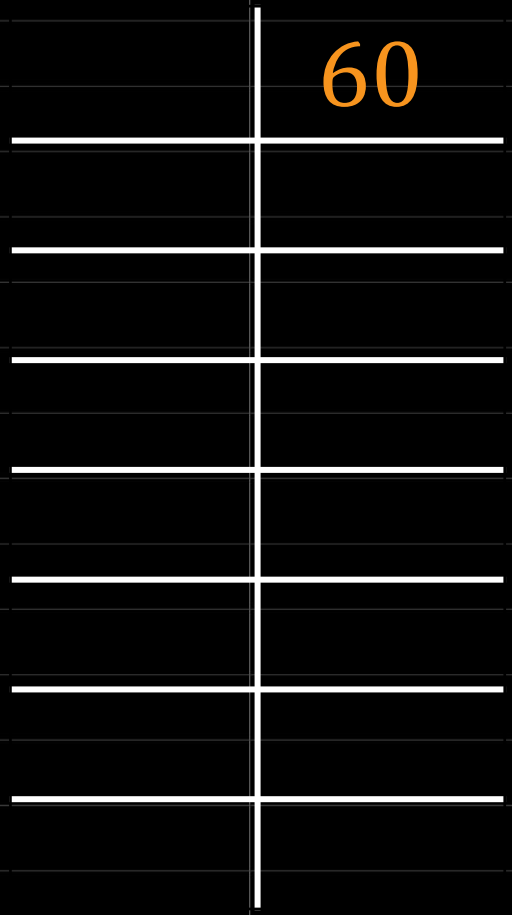
6. List five common multiples of $3\ and\ 5$
7. Calculate the sum of the factors of 32
8. What are the multiples of 8 that are between 43 and 89?
9. What are the first 20 multiples of 10? What do they have in common?

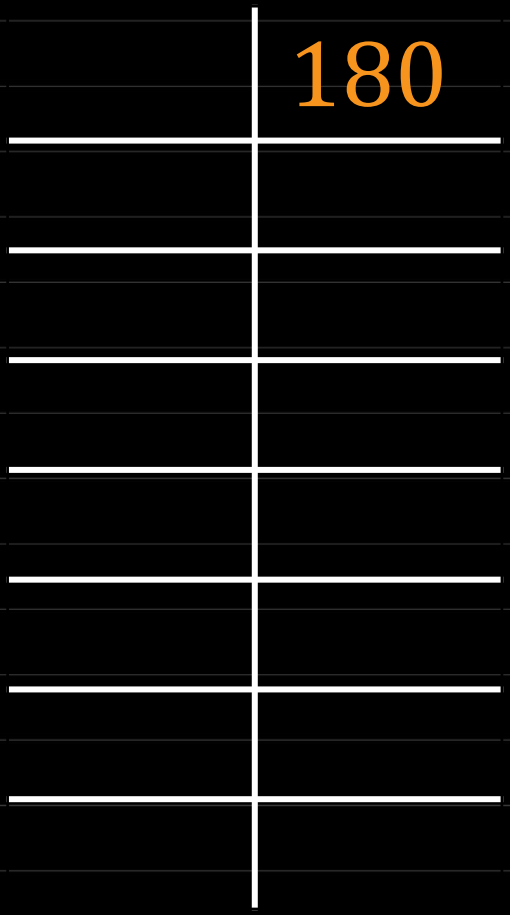
PRIME FACTORIZATION

Prime-factorization allows us express a composite number as a product of its **PRIME FACTORS**

Table method





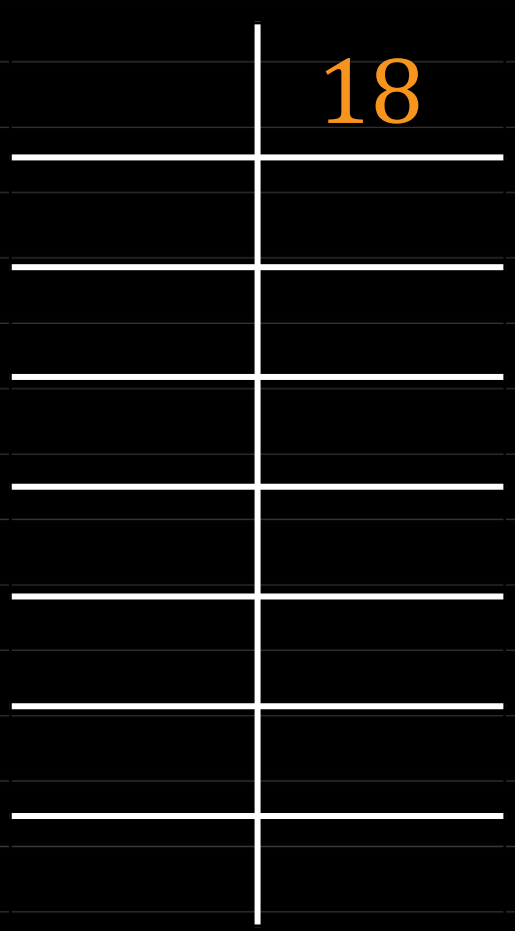


PRIME FACTORIZATION

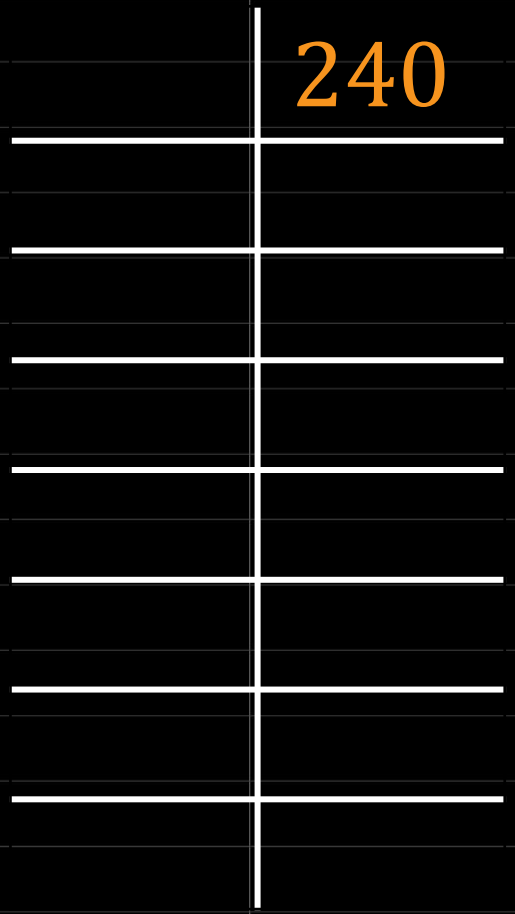
YOUR turn! ☺

Table method

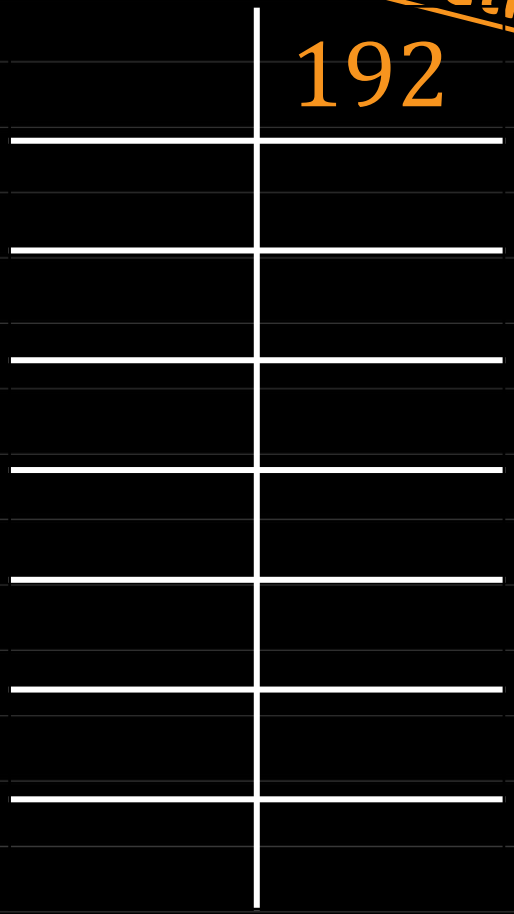
18



240



192



LEAD

Powers and Roots

$$x^a$$

A **power** tells us how many times the base number is used as a factor

Powers:

$7 \times 7 = 49$

$$7^2 = 49$$

$3 \times 3 \times 3 = 27$

$$3^3 = 27$$

$4 \times 4 = 16$

$$4^2 = 16$$

$2 \times 2 \times 2 \times 2 \times 2 = 32$

$$2^5 = 32$$

LEAD

POWERS AND ROOTS

Powers:

$7 \times 7 = 49$

$7^2 = 49$

$3 \times 3 \times 3 = 27$

$3^3 = 27$

$4 \times 4 = 16$

$4^2 = 16$

$2 \times 2 \times 2 \times 2 \times 2 = 32$

$2^5 = 32$

Roots:

$7 \times 7 = 49$

$\sqrt{49} = 7$

$3 \times 3 \times 3 = 27$

$\sqrt[3]{27} = 3$

$4 \times 4 = 16$

$\sqrt[2]{16} = 4$

$2 \times 2 \times 2 \times 2 \times 2 = 32$

$\sqrt[5]{32} = 2$

Practice problems:

$9^3 =$

$\sqrt{25} =$

$1.6^2 =$

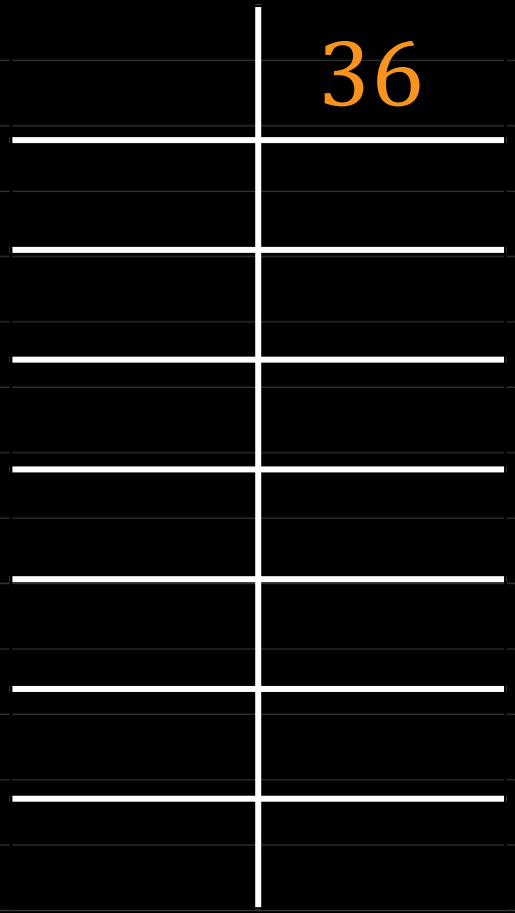
$\sqrt{196} =$

$1^3 - \sqrt{25} + \sqrt[3]{8}$

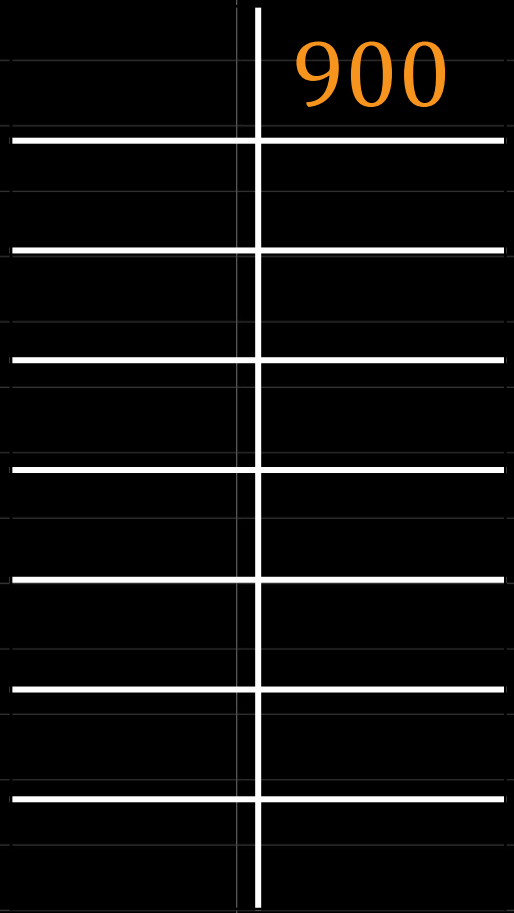
LEAD

Square and Cube roots

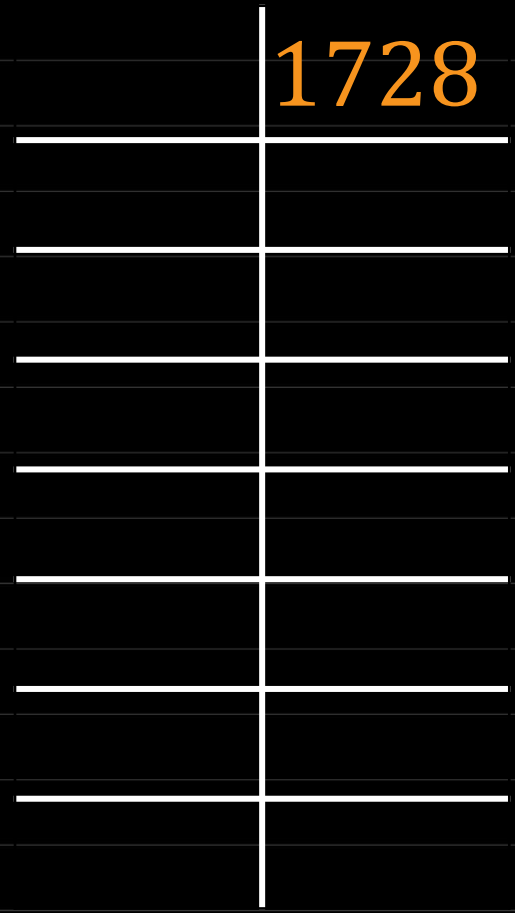
Square-root



Square-root



Cube-root

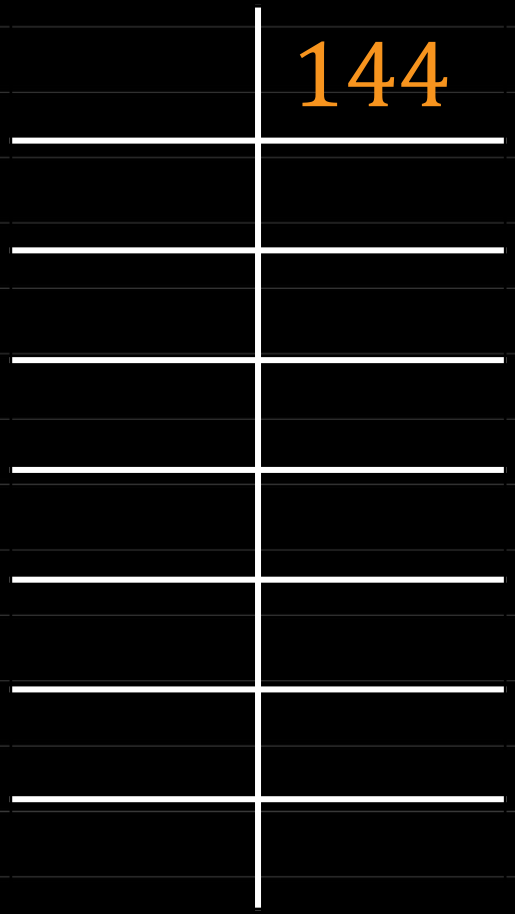


Square and Cube roots

YOUR turn! ☺

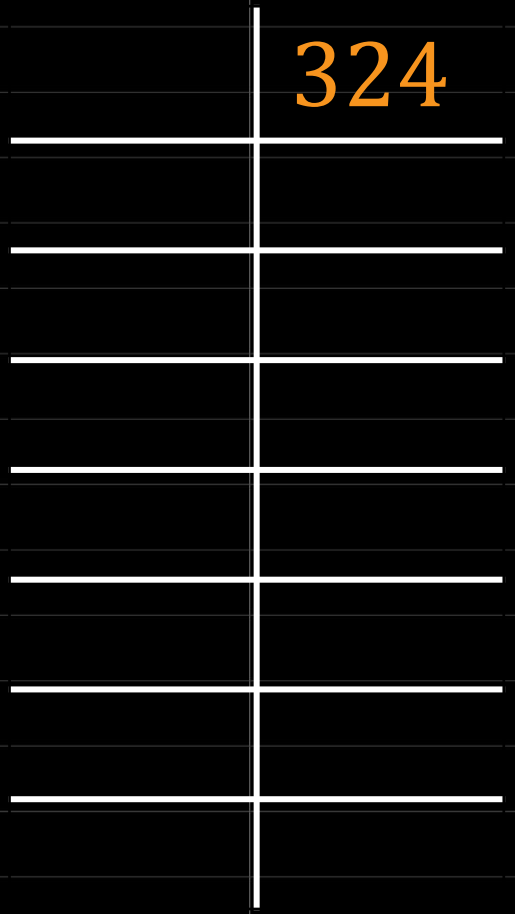
Square-root

144



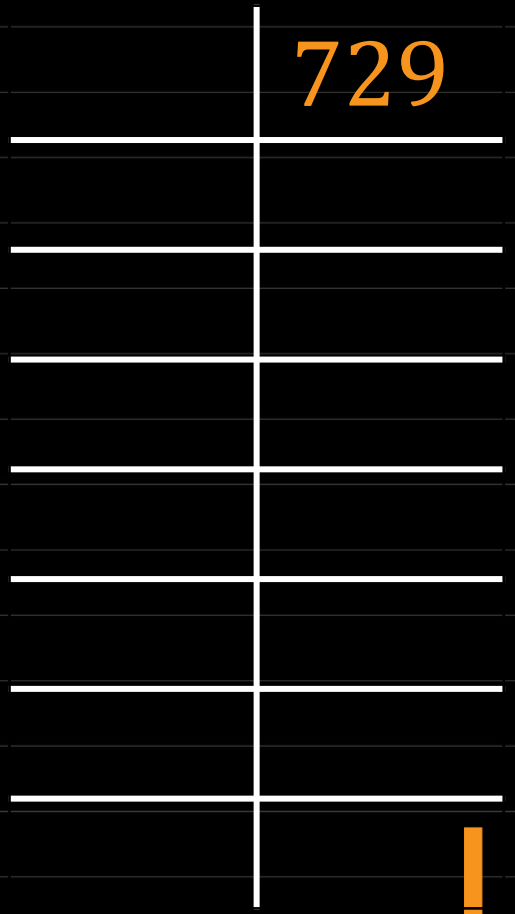
Square-root

324



Cube-root

729



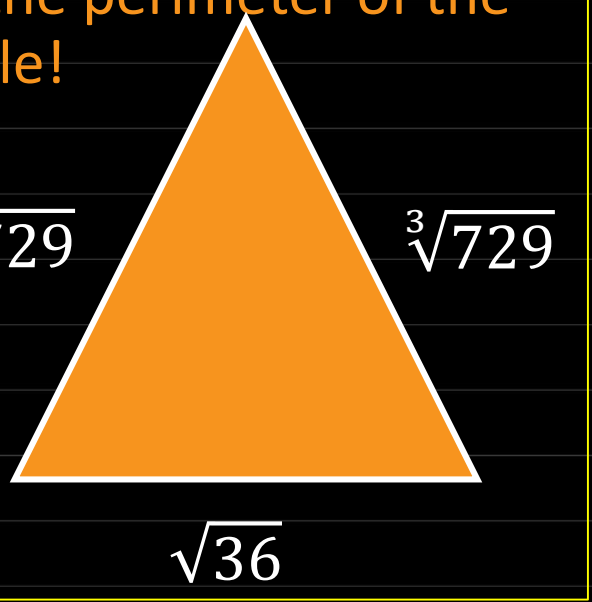
Square and Cube roots

Calculate the value of the following

1. $\sqrt{196}$
2. $\sqrt[3]{125}$
3. $\sqrt{625} - 6^2 + 36$
4. $2^4 \times 3^2 \times 7^2$

5. Ebube is trying to figure out the perimeter of an isosceles triangle. He has the following clues;
   - the equal sides on the triangle are both the cube root of $729cm$.
   - the base is the square root of $36cm$.

Help Ebube figure out the perimeter of the triangle!



Least COMMON MULTIPLE (L.C.M)

Work out the Least Common Multiple of 6 and 12

Work out the Least Common Multiple of 18 and 15

CLASS CHALLENGE!!!

Work out the lowest common multiple of $3, 4$ and 6

Greatest COMMON FACTOR (G.C.F)

Work out the Greatest Common Factor of 6 and 12

Work out the Greatest Common Factor of 24 and 30

CLASS CHALLENGE!!!

Work out the Greatest Common Factor of $30, 12$ and 6

L.C.M Table Method

- Work out the Least Common Multiple of 12 and 18

- Work out the Least Common Multiple of 72 and 120

- Work out the Least Common Multiple of 30 and 48

- Work out the Least Common Multiple of $12, 18$ and 24

G.C.F Table Method

- Work out the Least Common Multiple of 12 and 18

- Work out the Least Common Multiple of 72 and 120

- Work out the Least Common Multiple of 30 and 48

- Work out the Least Common Multiple of $12, 18$ and 24

GENERAL REVIEW QUESTIONS

1. What is the Least Common Multiple of $50, 15\ and\ 6$?
2. Find the HCF of $45, 60\ and\ 150$
3. Find the square root of 676
4. What is the cube root of 512
5. Prime factorize 6×15
6. Express 210 as a product of its prime factors
7. Divide the L.C.M of 4 and 18 by their H.C.F
8. Multiply the L.C.M of 4 , $8\ and\ 12$ by their H.C.F
9. What is the difference between the square root of 225 and the cube root of 512?
10. Express the LCM of $50, 18\ and\ 32$, as a product of its prime factors
11. Find the sum of the LCM and HCF of $10, 20\ and\ 30$.
12. The number of books in a library can be determined by multiplying 70 by 21. Express the total number of books as a product of its prime factors.