

# MISSION CODEBREAKER

TOPIC: NUMBER THEORY

LEVEL: AGES 11-14

SMART PATH BUSINESS MATHS

# MISSION BRIEFING: THE OBJECTIVE

- Crack the 4digit code to unlock the academy vault
- Level 1 – Identify factors
- Level 2- Find the HCF
- Level 3- Find the LCM
- Level 4 – spot the Prime Number



# CRITICAL SYSTEM ALERT

- MISSION: Defuse the digital bomb before the timer runs out!
- TASK: Find all **factors of 36**
- TO GET THE CODE: Count how many factors you find.

SUCCESS! Factors:  
1,2,3,4,6,9,12,18,36.  
Total=9

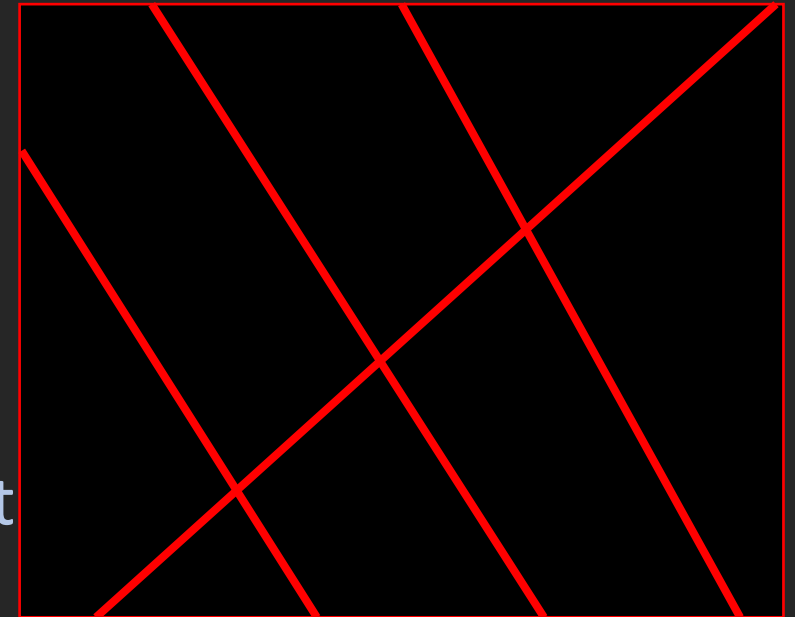
**FACTORS: A factor is a number that divides exactly into another number.(NO REMAINDER)**



# THE LASER SECURITY GRID

- Find the HCF of 24 and 36 to deactivate the laser system
- Factors of 24:  $2 \times 2 \times 2 \times 3$
- Factors of 36:  $2 \times 2 \times 3 \times 3$
- Common factors:  $2 \times 2 \times 3 = 12$
- HCF is 12
- HCF (HIGHEST COMMON FACTOR) = The largest number that divides both numbers exactly.

ACCESS GRANTED!



4

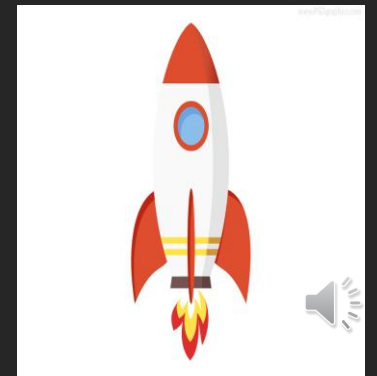
6

8

12

# ROCKET LAUNCH CONTROL

- MISSION: Launch the rocket to complete the mission!
- TASK: Find the LCM of 8 and 12
- TO GET THE CODE: Use the number to enter the launch code.
- **SUCCESS: MULTIPLES OF 8: 8,16,24,32,40,48....**  
**MULTIPLES OF 12: 12,24,36,48,60.....**  
**COMMON MULTIPLES:24,48.....**  
**LCM=24**
- LCM(lowest common multiple is a smallest number that is a multiple of 2 or more numbers.



# TREASURE HUNT: SPOT THE PRIME

- MISSION: find the correct key number to unlock the treasure chest !
- TASK: Look carefully at these numbers-7,12,15,18
- TO GET THE CODE: Which one is a Prime Number?
- **SUCCESS= 7(1,7)**
- PRIME NUMBER=A number greater than 1 that has exactly two factors:1 and the number itself



# MISSION ACCOMPLISHED

- YOU CRACKED THE 4 DIGIT CODE:

9 12 24 7

- SKILLS YOU MASTERED:

- ✓ Factors
- ✓ Highest common factor(HCF)
- ✓ Lowest common multiple(LCM)
- ✓ Prime numbers

# THANK YOU

Great work, codebreaker

