



The Case of the Miscalculated Mastermind

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 5-6

Detective: _____ Date: _____

The Golden Slide Rule has been stolen from the central vault at the National Academy of Mathematics! The culprit left behind a series of math clues at the scene. Crack the codes and help Detective Vector identify the thief before they divide and conquer!

1. Solve each math problem. The answer is a number, and the letter beside it is what that number stands for.
2. In the clue boxes, write that letter in every box showing the same number, then read the secret clue.
3. Use each clue to cross suspects off the list. The one suspect left at the end is the culprit!

My answer: the rogue mathematician is _____

Possible suspects

Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	MATH SPECIALTY	GADGET POWER	NERVOUS HABIT	HAIR STYLE	MATH FLAW
Rene Descartes	Calculus Beam	Pi Sphere	Clicking a Stopwatch	Sleek Ruler Straight	Unsimplified Fractions
Fibonacci	Calculus Beam	Pi Sphere	Clicking a Stopwatch	Curly Ink Black	Division by Zero
Gottfried Leibniz	Calculus Beam	Prime Barrier	Tapping a Pencil	Spiky Chalk White	Unsimplified Fractions
George Boole	Fractal Blast	Prime Barrier	Tapping a Pencil	Curly Ink Black	Unsimplified Fractions
Grace Hopper	Matrix Shift	Binary Spike	Clicking a Stopwatch	Sleek Ruler Straight	Unsimplified Fractions
John von Neumann	Calculus Beam	Pi Sphere	Tapping a Pencil	Curly Ink Black	Negative Numbers
Paul Erdos	Calculus Beam	Binary Spike	Clicking a Stopwatch	Curly Ink Black	Division by Zero
Sophie Germain	Geometry Shield	Pi Sphere	Clicking a Stopwatch	Sleek Ruler Straight	Negative Numbers
Florence Nightingale	Calculus Beam	Binary Spike	Tapping a Pencil	Curly Ink Black	Division by Zero
Emmy Noether	Matrix Shift	Graph Pulse	Tapping a Pencil	Spiky Chalk White	Division by Zero
Carl Gauss	Matrix Shift	Prime Barrier	Tapping a Pencil	Sleek Ruler Straight	Unsimplified Fractions
Katherine Johnson	Fractal Blast	Graph Pulse	Tapping a Pencil	Curly Ink Black	Division by Zero
Srinivasa Ramanujan	Fractal Blast	Logarithm Trap	Clicking a Stopwatch	Spiky Chalk White	Negative Numbers
Maryam Mirzakhani	Calculus Beam	Prime Barrier	Tapping a Pencil	Sleek Ruler Straight	Division by Zero
Euclid	Geometry Shield	Logarithm Trap	Tapping a Pencil	Spiky Chalk White	Negative Numbers
Leonhard Euler	Geometry Shield	Logarithm Trap	Tapping a Pencil	Curly Ink Black	Division by Zero
Hypatia	Fractal Blast	Binary Spike	Tapping a Pencil	Curly Ink Black	Division by Zero
Pythagoras	Vector Dash	Prime Barrier	Tapping a Pencil	Curly Ink Black	Unsimplified Fractions
Benoit Mandelbrot	Calculus Beam	Logarithm Trap	Tapping a Pencil	Spiky Chalk White	Division by Zero
Isaac Newton	Calculus Beam	Prime Barrier	Tapping a Pencil	Spiky Chalk White	Negative Numbers
Blaise Pascal	Matrix Shift	Graph Pulse	Tapping a Pencil	Curly Ink Black	Division by Zero

CLUE 1
Fractions of a number

We analyzed the laser grid on the vault door where only a specific fraction of the security beams were activated.

Solve each problem, then write its letter in every clue box that shows the same number.

T																T
23	29	11	18	39	33	33	40	39	21	27	3	11	4	21	3	23
35	4	11	33	3	14	40	9	39	23	29	31	23	9	40	36	

$1/2 \text{ of } 46 = \square \rightarrow \boxed{\text{T}}$

$3/6 \text{ of } 66 = \square \rightarrow \boxed{\text{L}}$

$2/6 \text{ of } 108 = \square \rightarrow \boxed{\text{P}}$

$1/5 \text{ of } 145 = \square \rightarrow \boxed{\text{H}}$

$2/4 \text{ of } 36 = \square \rightarrow \boxed{\text{V}}$

$3/5 \text{ of } 45 = \square \rightarrow \boxed{\text{D}}$

$1/3 \text{ of } 117 = \square \rightarrow \boxed{\text{I}}$

$3/6 \text{ of } 6 = \square \rightarrow \boxed{\text{O}}$

$1/6 \text{ of } 66 = \square \rightarrow \boxed{\text{E}}$

$2/4 \text{ of } 62 = \square \rightarrow \boxed{\text{M}}$

$1/3 \text{ of } 120 = \square \rightarrow \boxed{\text{A}}$

$1/10 \text{ of } 40 = \square \rightarrow \boxed{\text{S}}$

$2/8 \text{ of } 56 = \square \rightarrow \boxed{\text{G}}$

$1/5 \text{ of } 45 = \square \rightarrow \boxed{\text{R}}$

$2/10 \text{ of } 175 = \square \rightarrow \boxed{\text{U}}$

$2/4 \text{ of } 42 = \square \rightarrow \boxed{\text{N}}$

Scratch space:

CLUE 2

Order of operations

decrypting the locked computer terminal required evaluating the mathematical operations in their exact order.

Solve each problem, then write its letter in every clue box that shows the same number.

T									T							
73	48	32	7	66	7	51	32	9	73	63	22	7	7	32	32	29

T														
73	22	51	51	13	29	34	22	51	32	29	9	13	69	

$12 \times 7 - 11 = \square \rightarrow \boxed{\text{T}}$

$10 \times 9 - 24 = \square \rightarrow \boxed{\text{U}}$

$6 \times 3 - 11 = \square \rightarrow \boxed{\text{S}}$

$53 + 4 \times 4 = \square \rightarrow \boxed{\text{L}}$

$12 \times 4 - 16 = \square \rightarrow \boxed{\text{E}}$

$9 \times 9 - 18 = \square \rightarrow \boxed{\text{W}}$

$7 \times 5 - 26 = \square \rightarrow \boxed{\text{C}}$

$11 \times 7 - 29 = \square \rightarrow \boxed{\text{H}}$

$5 \times 11 - 26 = \square \rightarrow \boxed{\text{N}}$

$9 \times 5 - 23 = \square \rightarrow \boxed{\text{A}}$

$12 \times 6 - 21 = \square \rightarrow \boxed{\text{P}}$

$6 \times 6 - 23 = \square \rightarrow \boxed{\text{I}}$

$10 + 3 \times 8 = \square \rightarrow \boxed{\text{G}}$

Scratch space:

CLUE 3
Multiplication facts (1-12)

Examining the grid of footprints near the display case revealed equal rows of identical boot prints.

Solve each problem, then write its letter in every clue box that shows the same number.

T														T						
22	40	64	56	108	132	132	24	108	80	14	24	70	70	22	2	84	84	64	7	
54	12	7	108	56	108	70	108	2	80	54	12	33	64	48	2					

$11 \times 2 = \square \rightarrow \boxed{\text{T}}$

$12 \times 7 = \square \rightarrow \boxed{\text{P}}$

$8 \times 5 = \square \rightarrow \boxed{\text{H}}$

$12 \times 1 = \square \rightarrow \boxed{\text{Y}}$

$6 \times 4 = \square \rightarrow \boxed{\text{A}}$

$8 \times 8 = \square \rightarrow \boxed{\text{E}}$

$6 \times 9 = \square \rightarrow \boxed{\text{B}}$

$7 \times 2 = \square \rightarrow \boxed{\text{W}}$

$7 \times 10 = \square \rightarrow \boxed{\text{S}}$

$11 \times 12 = \square \rightarrow \boxed{\text{L}}$

$7 \times 1 = \square \rightarrow \boxed{\text{D}}$

$8 \times 6 = \square \rightarrow \boxed{\text{R}}$

$9 \times 12 = \square \rightarrow \boxed{\text{I}}$

$10 \times 8 = \square \rightarrow \boxed{\text{N}}$

$11 \times 3 = \square \rightarrow \boxed{\text{Z}}$

$7 \times 8 = \square \rightarrow \boxed{\text{V}}$

$2 \times 1 = \square \rightarrow \boxed{\text{O}}$

Scratch space:

CLUE 4
Rounding

The energy sensor readout at the crime scene logged power spikes rounded to the nearest hundred units.

Solve each problem, then write its letter in every clue box that shows the same number.

C											C						
230	2300	700	50	30	5000	3700	20	2000	50	200	230	20	370	200	5000	700	
														C			
4300	200	170	3000	500	2300	3700	2900	200	130	130	370	9000	170	230	9000	3700	9000

Round 232 to the nearest ten → **C**

Round 3,701 to the nearest hundred → **N**

Round 51 to the nearest ten → **L**

Round 720 to the nearest hundred → **R**

Round 174 to the nearest ten → **S**

Round 466 to the nearest hundred → **O**

Round 2,281 to the nearest thousand → **B**

Round 3,171 to the nearest thousand → **F**

Round 24 to the nearest ten → **K**

Round 223 to the nearest hundred → **A**

Round 8,661 to the nearest thousand → **E**

Round 2,930 to the nearest hundred → **D**

Round 373 to the nearest ten → **H**

Round 2,324 to the nearest hundred → **U**

Round 134 to the nearest ten → **T**

Round 4,309 to the nearest hundred → **W**

Round 5,118 to the nearest thousand → **I**

Round 34 to the nearest ten → **Y**

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

Splitting the total number of recovered data fragments equally across our storage drives yielded the final hint.

First solve each problem. Then find each answer in the numbered list below and cross that sentence out. One sentence will be left - that is exactly what the villain did!

Step 1 - solve these:

$60 \div 5 = \boxed{}$

$32 \div 4 = \boxed{}$

$14 \div 7 = \boxed{}$

$30 \div 5 = \boxed{}$

$77 \div 11 = \boxed{}$

$110 \div 10 = \boxed{}$

$40 \div 10 = \boxed{}$

$40 \div 4 = \boxed{}$

$12 \div 12 = \boxed{}$

$6 \div 2 = \boxed{}$

$54 \div 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain zoomed ahead with a vector dash, then locked the vault with a logarithm trap.
2. The villain blasted light with a calculus beam, then struck hard with a binary spike.
3. The villain blocked attacks with a geometry shield, then jammed systems with a graph pulse.
4. The villain blasted light with a calculus beam, then locked the vault with a logarithm trap.
5. The villain created patterns with a fractal blast, then jammed systems with a graph pulse.
6. The villain blocked attacks with a geometry shield, then struck hard with a binary spike.
7. The villain blocked attacks with a geometry shield, then trapped the guard in a pi sphere.
8. The villain created patterns with a fractal blast, then struck hard with a binary spike.
9. The villain created patterns with a fractal blast, then trapped the guard in a pi sphere.
10. The villain blocked attacks with a geometry shield, then raised a prime barrier.
11. The villain blasted light with a calculus beam, then raised a prime barrier.
12. The villain warped space with a matrix shift, then jammed systems with a graph pulse.

Answer Key

The Case of the Miscalculated Mastermind

Culprit: Katherine Johnson

Fractal Blast · Graph Pulse · Tapping a Pencil · Curly Ink Black · Division by Zero

Trail: Start 21 → Clue 1 17 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT USE LOGARITHM TRAP"

$\frac{1}{2}$ of 46 = 23 (T) · $\frac{3}{6}$ of 66 = 33 (L) · $\frac{2}{6}$ of 108 = 36 (P) · $\frac{1}{5}$ of 145 = 29 (H) · $\frac{2}{4}$ of 36 = 18 (V) · $\frac{3}{5}$ of 45 = 27 (D) · $\frac{1}{3}$ of 117 = 39 (I) · $\frac{3}{6}$ of 6 = 3 (O) · $\frac{1}{6}$ of 66 = 11 (E) · $\frac{2}{4}$ of 62 = 31 (M) · $\frac{1}{3}$ of 120 = 40 (A) · $\frac{1}{10}$ of 40 = 4 (S) · $\frac{2}{8}$ of 56 = 14 (G) · $\frac{1}{5}$ of 45 = 9 (R) · $\frac{2}{10}$ of 175 = 35 (U) · $\frac{2}{4}$ of 42 = 21 (N)

Clue 2 (Order of operations): "THE SUSPECT WAS SEEN TAPPING A PENCIL"

$12 \times 7 - 11 = 73$ (T) · $10 \times 9 - 24 = 66$ (U) · $6 \times 3 - 11 = 7$ (S) · $53 + 4 \times 4 = 69$ (L) · $12 \times 4 - 16 = 32$ (E) · $9 \times 9 - 18 = 63$ (W) · $7 \times 5 - 26 = 9$ (C) · $11 \times 7 - 29 = 48$ (H) · $5 \times 11 - 26 = 29$ (N) · $9 \times 5 - 23 = 22$ (A) · $12 \times 6 - 21 = 51$ (P) · $6 \times 6 - 23 = 13$ (I) · $10 + 3 \times 8 = 34$ (G)

Clue 3 (Multiplication facts (1-12)): "THE VILLAIN WAS STOPPED BY DIVISION BY ZERO"

$11 \times 2 = 22$ (T) · $12 \times 7 = 84$ (P) · $8 \times 5 = 40$ (H) · $12 \times 1 = 12$ (Y) · $6 \times 4 = 24$ (A) · $8 \times 8 = 64$ (E) · $6 \times 9 = 54$ (B) · $7 \times 2 = 14$ (W) · $7 \times 10 = 70$ (S) · $11 \times 12 = 132$ (L) · $7 \times 1 = 7$ (D) · $8 \times 6 = 48$ (R) · $9 \times 12 = 108$ (I) · $10 \times 8 = 80$ (N) · $11 \times 3 = 33$ (Z) · $7 \times 8 = 56$ (V) · $2 \times 1 = 2$ (O)

Clue 4 (Rounding): "CURLY INK BLACK HAIR WAS FOUND AT THE SCENE"

Round 232 to the nearest ten = 230 (C) · Round 3,701 to the nearest hundred = 3700 (N) · Round 51 to the nearest ten = 50 (L) · Round 720 to the nearest hundred = 700 (R) · Round 174 to the nearest ten = 170 (S) · Round 466 to the nearest hundred = 500 (O) · Round 2,281 to the nearest thousand = 2000 (B) · Round 3,171 to the nearest thousand = 3000 (F) · Round 24 to the nearest ten = 20 (K) · Round 223 to the nearest hundred = 200 (A) · Round 8,661 to the nearest thousand = 9000 (E) · Round 2,930 to the nearest hundred = 2900 (D) · Round 373 to the nearest ten = 370 (H) · Round 2,324 to the nearest hundred = 2300 (U) · Round 134 to the nearest ten = 130 (T) · Round 4,309 to the nearest hundred = 4300 (W) · Round 5,118 to the nearest thousand = 5000 (I) · Round 34 to the nearest ten = 30 (Y)

Clue 5 (Division facts (1-12)): surviving statement is box 5 → Katherine Johnson

$60 \div 5 = 12$ · $32 \div 4 = 8$ · $14 \div 7 = 2$ · $30 \div 5 = 6$ · $77 \div 11 = 7$ · $110 \div 10 = 11$ · $40 \div 10 = 4$ · $40 \div 4 = 10$ · $12 \div 12 = 1$ · $6 \div 2 = 3$ · $54 \div 6 = 9$