# The Great Meridian Mystery

Grade 5 math · Addition, Subtraction, Multiplication, Fractions of a number, Division · Reading level grades 5-6

**Detective:** _____ **Date:** _____

Someone has scrambled the world's prime meridian marker inside the archives, throwing GPS coordinates across the globe into complete chaos! The Chief Cartographer needs your mathematical precision and map-reading skills to solve the clues and track down the culprit before we are lost forever.

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 Coordinate Crook is** _____

## Possible suspects

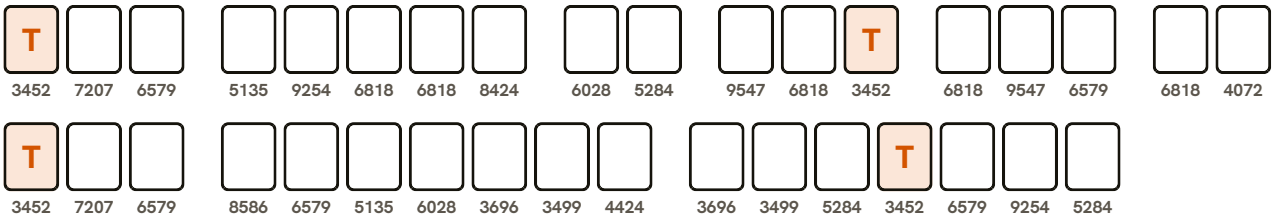
Cross off a row as each clue rules it out. The one left at the end is the culprit.

| NAME | NAVIGATION GEAR | MATH SPECIALTY | MARKING STYLE | WIG COLOR | NAVIGATION ERROR |
|---|---|---|---|---|---|
| **Alexander Humboldt** | brass compass | decimal masters | using blue ink | silver gray hair | rounding error |
| **Carl Friedrich Gauss** | laser rangefinder | fraction solvers | using blue ink | silver gray hair | scale mismatch |
| **Amerigo Vespucci** | brass compass | decimal masters | using red ink | ink black hair | magnetic drift |
| **Sacagawea** | laser rangefinder | topology wizards | using red ink | ink black hair | magnetic drift |
| **Mary Somerville** | laser rangefinder | algebra champions | using blue ink | silver gray hair | rounding error |
| **Alan Turing** | brass compass | fraction solvers | using blue ink | sandy brown hair | rounding error |
| **Al Khwarizmi** | topographic scanner | geometry experts | using blue ink | silver gray hair | rounding error |
| **Grace Hopper** | pocket sextant | algebra champions | using red ink | sandy brown hair | magnetic drift |
| **Hypatia** | topographic scanner | decimal masters | using blue ink | ink black hair | scale mismatch |
| **Pythagoras** | pocket sextant | topology wizards | using blue ink | sandy brown hair | rounding error |
| **Gerardus Mercator** | satellite receiver | algebra champions | using red ink | silver gray hair | rounding error |
| **Eratosthenes** | brass compass | algebra champions | using red ink | sandy brown hair | magnetic drift |
| **Marco Polo** | laser rangefinder | algebra champions | using blue ink | silver gray hair | magnetic drift |
| **Katherine Johnson** | laser rangefinder | fraction solvers | using red ink | silver gray hair | scale mismatch |
| **Blaise Pascal** | brass compass | geometry experts | using blue ink | silver gray hair | rounding error |
| **Isaac Newton** | laser rangefinder | decimal masters | using blue ink | ink black hair | scale mismatch |
| **Jeanne Baret** | pocket sextant | fraction solvers | using red ink | ink black hair | rounding error |
| **Ada Lovelace** | topographic scanner | decimal masters | using red ink | sandy brown hair | magnetic drift |
| **Euclid** | satellite receiver | fraction solvers | using red ink | sandy brown hair | scale mismatch |
| **Ibn Battuta** | satellite receiver | topology wizards | using blue ink | silver gray hair | scale mismatch |
| **James Cook** | topographic scanner | algebra champions | using blue ink | silver gray hair | rounding error |

## CLUE 1 Addition

> To trace the escape route across the continents, we must add up the total distance between the scrambled coordinates. Let us tally these values first.

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




| | | |
|---|---|---|
| 1328 + 2124 = ☐ → T | 2714 + 4493 = ☐ → H | 6337 + 3210 = ☐ → N |
| 2523 + 2761 = ☐ → S | 3069 + 3510 = ☐ → E | 5745 + 3509 = ☐ → R |
| 1818 + 4210 = ☐ → I | 2414 + 1658 = ☐ → F | 3145 + 1990 = ☐ → C |
| 2171 + 2253 = ☐ → L | 2675 + 4143 = ☐ → O | 5117 + 3469 = ☐ → D |
| 1647 + 1852 = ☐ → A | 1216 + 2480 = ☐ → M | 4886 + 3538 = ☐ → K |

Scratch space:

## CLUE 2 Subtraction

> The suspect tampered with the altitude settings on our GPS tracking screen. Subtract the baseline elevation from the current peaks to isolate the real pathway.

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


5356 - 895 = ☐ → **T**

3297 - 1413 = ☐ → **I**

8495 - 2930 = ☐ → **U**

6228 - 3095 = ☐ → **S**

5672 - 51 = ☐ → **A**

11839 - 3838 = ☐ → **C**

11302 - 2954 = ☐ → **D**

4283 - 124 = ☐ → **P**

3381 - 651 = ☐ → **M**

11312 - 4533 = ☐ → **E**

6510 - 2472 = ☐ → **B**

5245 - 3822 = ☐ → **N**

3861 - 1721 = ☐ → **K**

6904 - 3742 = ☐ → **R**

4995 - 1781 = ☐ → **H**

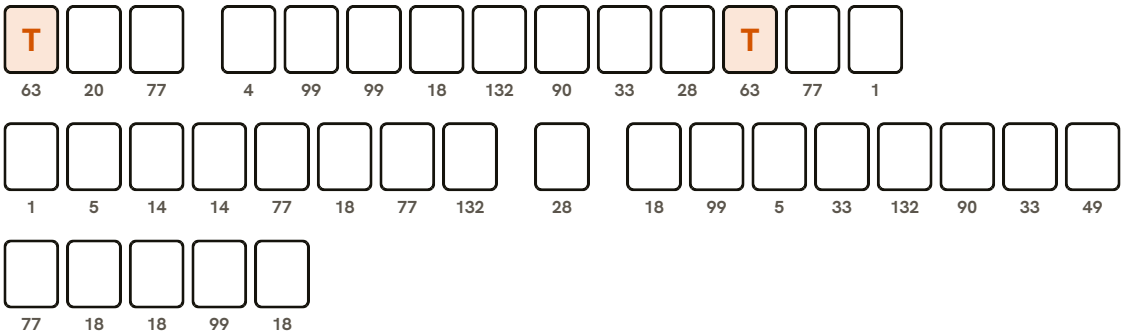
6061 - 1396 = ☐ → **L**

Scratch space:

## CLUE 3 Multiplication facts (1-12)

> The search grid is divided into neat rows and columns. Multiply the scale divisions of our target grid map to find out how many square units we must investigate.

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



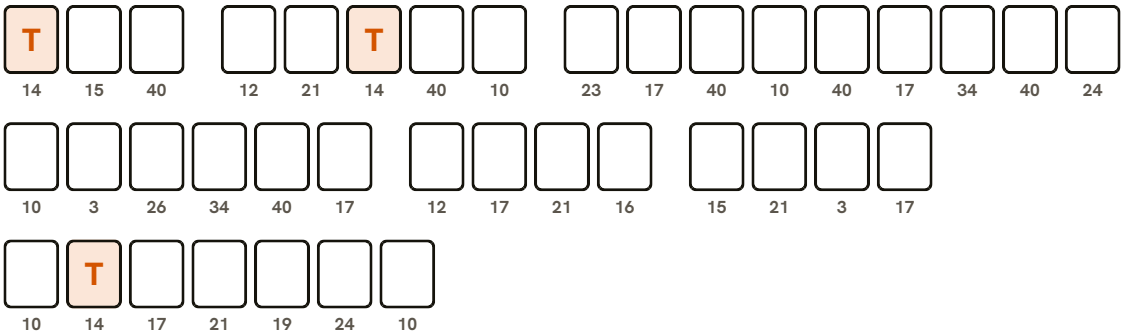

| | | |
|---|---|---|
| 7 × 9 = ☐ → T | 4 × 5 = ☐ → H | 11 × 12 = ☐ → D |
| 2 × 7 = ☐ → F | 1 × 1 = ☐ → S | 10 × 9 = ☐ → I |
| 11 × 7 = ☐ → E | 4 × 1 = ☐ → C | 9 × 2 = ☐ → R |
| 9 × 11 = ☐ → O | 7 × 7 = ☐ → G | 7 × 4 = ☐ → A |
| 11 × 3 = ☐ → N | | 5 × 1 = ☐ → U |

Scratch space:

## CLUE 4 Fractions of a number

> Only a fraction of the historical map files in the secure drawer were altered by the intruder. Let us calculate this fraction of the total archive set to unlock the next clue.

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




3/6 of 28 = ☐ → T

2/10 of 95 = ☐ → N

3/6 of 34 = ☐ → R

4/8 of 6 = ☐ → I

1/2 of 42 = ☐ → A

2/4 of 80 = ☐ → E

2/8 of 60 = ☐ → H

3/6 of 52 = ☐ → L

1/5 of 80 = ☐ → Y

2/8 of 92 = ☐ → P

3/6 of 24 = ☐ → G

4/10 of 85 = ☐ → V

3/4 of 32 = ☐ → D

1/5 of 50 = ☐ → S

Scratch space:

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

> We need to divide our search party evenly into regional tracking teams. Divide the total coordinate boundaries by the number of active teams to get our final search area.

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:**

| | | | | |
|---|---|---|---|---|
| 77 ÷ 7 = ☐ | 24 ÷ 6 = ☐ | 42 ÷ 7 = ☐ | 108 ÷ 12 = ☐ | 50 ÷ 10 = ☐ |
| 120 ÷ 10 = ☐ | 20 ÷ 2 = ☐ | 64 ÷ 8 = ☐ | 42 ÷ 6 = ☐ | 24 ÷ 12 = ☐ |
| 33 ÷ 11 = ☐ | | | | |

**Step 2 - cross out the sentence with each answer:**

1. The villain measured the distance with a laser rangefinder, then solved riddles like algebra champions.
2. The villain mapped the chamber with a topographic scanner, then navigated the rooms like topology wizards.
3. The villain measured the distance with a laser rangefinder, then bragged about being fraction solvers.
4. The villain mapped the chamber with a topographic scanner, then solved riddles like algebra champions.
5. The villain oriented the vault map with a brass compass, then bragged about being fraction solvers.
6. The villain oriented the vault map with a brass compass, then proved they were skilled geometry experts.
7. The villain calculated angles using a pocket sextant, then solved riddles like algebra champions.
8. The villain measured the distance with a laser rangefinder, then declared themselves decimal masters.
9. The villain tracked the satellite receiver signal, then solved riddles like algebra champions.
10. The villain tracked the satellite receiver signal, then proved they were skilled geometry experts.
11. The villain mapped the chamber with a topographic scanner, then proved they were skilled geometry experts.
12. The villain tracked the satellite receiver signal, then declared themselves decimal masters.

TEACHER / PARENT

# Answer Key

The Great Meridian Mystery

## Culprit: Mary Somerville

laser rangefinder · algebra champions · using blue ink · silver gray hair · rounding error

Trail: Start 21 → Clue 1 16 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

### Clue 1 (Addition): "THE CROOK IS NOT ONE OF THE DECIMAL MASTERS"

1328 + 2124 = 3452 (T) · 2714 + 4493 = 7207 (H) · 6337 + 3210 = 9547 (N) · 2523 + 2761 = 5284 (S) · 3069 + 3510 = 6579 (E) · 5745 + 3509 = 9254 (R) · 1818 + 4210 = 6028 (I) · 2414 + 1658 = 4072 (F) · 3145 + 1990 = 5135 (C) · 2171 + 2253 = 4424 (L) · 2675 + 4143 = 6818 (O) · 5117 + 3469 = 8586 (D) · 1647 + 1852 = 3499 (A) · 1216 + 2480 = 3696 (M) · 4886 + 3538 = 8424 (K)

### Clue 2 (Subtraction): "THE CRIME SCENE MAP HAD BLUE INK MARKS"

5356 - 895 = 4461 (T) · 3297 - 1413 = 1884 (I) · 8495 - 2930 = 5565 (U) · 6228 - 3095 = 3133 (S) · 5672 - 51 = 5621 (A) · 11839 - 3838 = 8001 (C) · 11302 - 2954 = 8348 (D) · 4283 - 124 = 4159 (P) · 3381 - 651 = 2730 (M) · 11312 - 4533 = 6779 (E) · 6510 - 2472 = 4038 (B) · 5245 - 3822 = 1423 (N) · 3861 - 1721 = 2140 (K) · 6904 - 3742 = 3162 (R) · 4995 - 1781 = 3214 (H) · 6061 - 1396 = 4665 (L)

### Clue 3 (Multiplication facts (1-12)): "THE COORDINATES SUFFERED A ROUNDING ERROR"

7 × 9 = 63 (T) · 4 × 5 = 20 (H) · 11 × 12 = 132 (D) · 2 × 7 = 14 (F) · 1 × 1 = 1 (S) · 10 × 9 = 90 (I) · 11 × 7 = 77 (E) · 4 × 1 = 4 (C) · 9 × 2 = 18 (R) · 9 × 11 = 99 (O) · 7 × 7 = 49 (G) · 7 × 4 = 28 (A) · 5 × 1 = 5 (U) · 11 × 3 = 33 (N)

### Clue 4 (Fractions of a number): "THE GATES PRESERVED SILVER GRAY HAIR STRANDS"

3/6 of 28 = 14 (T) · 2/10 of 95 = 19 (N) · 3/6 of 34 = 17 (R) · 4/8 of 6 = 3 (I) · 1/2 of 42 = 21 (A) · 2/4 of 80 = 40 (E) · 2/8 of 60 = 15 (H) · 3/6 of 52 = 26 (L) · 1/5 of 80 = 16 (Y) · 2/8 of 92 = 23 (P) · 3/6 of 24 = 12 (G) · 4/10 of 85 = 34 (V) · 3/4 of 32 = 24 (D) · 1/5 of 50 = 10 (S)

### Clue 5 (Division facts (1-12)): surviving statement is box 1 → Mary Somerville

77 ÷ 7 = 11 · 24 ÷ 6 = 4 · 42 ÷ 7 = 6 · 108 ÷ 12 = 9 · 50 ÷ 10 = 5 · 120 ÷ 10 = 12 · 20 ÷ 2 = 10 · 64 ÷ 8 = 8 · 42 ÷ 6 = 7 · 24 ÷ 12 = 2 · 33 ÷ 11 = 3