



The Golden Protractor Caper

Grade 4 math · Rounding, Addition, Subtraction, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

The Great Number Grid is in trouble! Someone stole the Golden Protractor from the Chief Equation Keeper. Without it, all the geometric shapes in the digital world are melting! A sneaky Glitch Bandit is behind this. Use your math detective skills to trace the clues, solve the equations, and capture the bandit!

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 Glitch Bandit is _____

Possible suspects

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

NAME	PRIMARY MATH POWER	MATH GEAR	WRITING HAND	GLOW HAIR COLOR	NUMBER WEAKNESS
Ada Lovelace	algebra warp	ruler sword	right handed writer	sparkly pink hair	even numbers
George Boole	division blast	calculator glove	left handed writer	sparkly pink hair	even numbers
Rene Descartes	fraction beam	compass hook	left handed writer	sparkly pink hair	prime numbers
Pierre Fermat	division blast	ruler sword	left handed writer	neon green hair	prime numbers
Mary Jackson	division blast	graph boots	left handed writer	bright blue hair	prime numbers
Euclid	division blast	ruler sword	left handed writer	neon green hair	odd numbers
Hypatia	decimal strike	calculator glove	right handed writer	bright blue hair	even numbers
Blaise Pascal	fraction beam	ruler sword	right handed writer	sparkly pink hair	prime numbers
John Nash	decimal strike	digital abacus	right handed writer	bright blue hair	prime numbers
Alan Turing	algebra warp	graph boots	right handed writer	neon green hair	odd numbers
Katherine Johnson	division blast	graph boots	left handed writer	sparkly pink hair	odd numbers
Albert Einstein	addition shield	graph boots	left handed writer	bright blue hair	prime numbers
Archimedes	division blast	digital abacus	left handed writer	bright blue hair	even numbers
Sofia Kovalevskaya	addition shield	digital abacus	left handed writer	bright blue hair	prime numbers
Grace Hopper	decimal strike	digital abacus	left handed writer	bright blue hair	prime numbers
Leonhard Euler	division blast	compass hook	left handed writer	bright blue hair	prime numbers
Isaac Newton	decimal strike	calculator glove	left handed writer	sparkly pink hair	prime numbers
Emmy Noether	fraction beam	graph boots	left handed writer	neon green hair	prime numbers
Sophie Germain	algebra warp	graph boots	left handed writer	sparkly pink hair	even numbers
Carl Gauss	decimal strike	ruler sword	left handed writer	bright blue hair	odd numbers
Dorothy Vaughan	decimal strike	calculator glove	left handed writer	neon green hair	even numbers

CLUE 1

We scan the villain's escape pod, but the radar screen can only show rounded numbers. Estimate the total to read the screen!

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

9000 1300 1100 2900 700 2300 110 3000 9000 110 370 1100 430 2300 370 9000 50 430 1100

700 200 370 3700 500 700 430 430 1300 370 370 1700

Round 8,819 to the nearest thousand $\rightarrow$ **T**

Round 2,853 to the nearest hundred $\rightarrow$ **B**

Round 1,051 to the nearest hundred $\rightarrow$ **E**

Round 3,428 to the nearest thousand $\rightarrow$

Round 371 to the nearest ten $\rightarrow$ **0**

Round 736 to the nearest hundred → **A**

Round 114 to the nearest ten $\rightarrow$ **D**

Round 2,340 to the nearest hundred → **N**

Round 47 to the nearest ten $\rightarrow$ **U**

Round 532 to the nearest hundred $\rightarrow$ **P**

Round 1,748 to the nearest hundred → **K**

Round 1,294 to the nearest hundred $\rightarrow$ **H**

Round 430 to the nearest ten $\rightarrow$ **S**

Round 209 to the nearest hundred → **C**

Round 3,677 to the nearest hundred → **M**

Scratch space:

CLUE 2

To unlock the grid gate, we must add up the total number of security nodes. Count them carefully to get the key!

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

8306 6716 4538 9187 6876 9187 2655 4538 5015 8306 8674 7733 5025 8306 4538 9187 8674 5025 8306 6716

8306 6716 4538 5025 7733 6481 4538 2127 8306 6716 9874 8935 8535

$$3662 + 4644 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$4249 + 2627 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$2359 + 2656 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$5533 + 3002 = \boxed{} \rightarrow \boxed{\text{D}}$$

$3134 + 1404 = \boxed{} \rightarrow \boxed{\text{E}}$

$$3526 + 2955 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$4832 + 2901 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$1651 + 1004 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$4343 + 4592 = \boxed{} \rightarrow \boxed{\text{N}}$$

$1197 + 930 = \boxed{} \rightarrow \boxed{\text{F}}$

$$4681 + 3993 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$$5260 + 4614 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$4510 + 4677 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$2876 + 2149 = \boxed{} \rightarrow \boxed{}$$

$$4487 + 2229 = \boxed{} \rightarrow \boxed{\text{H}}$$

Scratch space:

CLUE 3

Subtraction

The bandit dropped a bag of glowing pixels, but some are missing. Subtract the lost pixels to find out how many are left!

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

T																		
5797	1609	3436	3843	8596	3436	5377	1473	3069	7458	8596	3843	6155	3069	1606	2946			
5865	3069	3085	2946	3436	8596	7458	2946	5482	3436	3069	3843							

$8586 - 2789 = \square \rightarrow \text{T}$

$4527 - 3054 = \square \rightarrow \text{K}$

$5920 - 55 = \square \rightarrow \text{P}$

$6648 - 2805 = \square \rightarrow \text{S}$

$10129 - 4647 = \square \rightarrow \text{B}$

$4090 - 2481 = \square \rightarrow \text{H}$

$4675 - 1729 = \square \rightarrow \text{M}$

$3868 - 432 = \square \rightarrow \text{E}$

$3484 - 399 = \square \rightarrow \text{I}$

$7987 - 529 = \square \rightarrow \text{U}$

$2117 - 511 = \square \rightarrow \text{O}$

$6563 - 3494 = \square \rightarrow \text{R}$

$9892 - 3737 = \square \rightarrow \text{F}$

$11988 - 3392 = \square \rightarrow \text{N}$

$9078 - 3701 = \square \rightarrow \text{A}$

Scratch space:

CLUE 4
Multiplication facts (1-12)

We find a clue hidden behind a wall of math tiles. Count the rows and columns to multiply the total and unlock it!

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

W																
16	81	120	42	96	121	55	56	100	8	3	25	108	56	84	96	81
25	20	8	100	20	108	108	25	81	3	100	8	55				

$4 \times 4 = \square \rightarrow \boxed{\text{W}}$

$10 \times 10 = \square \rightarrow \boxed{\text{R}}$

$5 \times 4 = \square \rightarrow \boxed{\text{A}}$

$9 \times 9 = \square \rightarrow \boxed{\text{E}}$

$12 \times 8 = \square \rightarrow \boxed{\text{U}}$

$8 \times 1 = \square \rightarrow \boxed{\text{I}}$

$7 \times 6 = \square \rightarrow \boxed{\text{O}}$

$10 \times 12 = \square \rightarrow \boxed{\text{F}}$

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

$5 \times 11 = \square \rightarrow \boxed{\text{D}}$

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

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

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

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

$3 \times 1 = \square \rightarrow \boxed{\text{G}}$

Scratch space:

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

We must share these puzzle clues equally among our team. Split them up to decode the final piece of the mystery!

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:

$35 \div 5 = \boxed{}$

$18 \div 2 = \boxed{}$

$10 \div 5 = \boxed{}$

$24 \div 3 = \boxed{}$

$6 \div 6 = \boxed{}$

$50 \div 10 = \boxed{}$

$96 \div 8 = \boxed{}$

$33 \div 11 = \boxed{}$

$110 \div 11 = \boxed{}$

$30 \div 5 = \boxed{}$

$33 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain slices the locks with a fraction beam, then escapes across coordinates using graph boots.
2. The villain blocks the path with an addition shield, then rewrites the database with a digital abacus.
3. The villain breaks down the vault with a division blast, then snatches the prize with a compass hook.
4. The villain breaks down the vault with a division blast, then escapes across coordinates using graph boots.
5. The villain teleports away using an algebra warp, then snatches the prize with a compass hook.
6. The villain slices the locks with a fraction beam, then rewrites the database with a digital abacus.
7. The villain blocks the path with an addition shield, then escapes across coordinates using graph boots.
8. The villain cracks the firewall with a decimal strike, then escapes across coordinates using graph boots.
9. The villain cracks the firewall with a decimal strike, then rewrites the database with a digital abacus.
10. The villain cracks the firewall with a decimal strike, then types in a virus with a calculator glove.
11. The villain cracks the firewall with a decimal strike, then snatches the prize with a compass hook.
12. The villain teleports away using an algebra warp, then types in a virus with a calculator glove.

Answer Key

The Golden Protractor Caper

Culprit: Mary Jackson

division blast · graph boots · left handed writer · bright blue hair · prime numbers

Trail: Start 21 → Clue 1 19 → Clue 2 14 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE BANDIT DOES NOT USE A COMPASS HOOK"

Round 8,819 to the nearest thousand = 9000 (T) · Round 2,853 to the nearest hundred = 2900 (B) · Round 1,051 to the nearest hundred = 1100 (E) · Round 3,428 to the nearest thousand = 3000 (I) · Round 371 to the nearest ten = 370 (O) · Round 736 to the nearest hundred = 700 (A) · Round 114 to the nearest ten = 110 (D) · Round 2,340 to the nearest hundred = 2300 (N) · Round 47 to the nearest ten = 50 (U) · Round 532 to the nearest hundred = 500 (P) · Round 1,748 to the nearest hundred = 1700 (K) · Round 1,294 to the nearest hundred = 1300 (H) · Round 430 to the nearest ten = 430 (S) · Round 209 to the nearest hundred = 200 (C) · Round 3,677 to the nearest hundred = 3700 (M)

Clue 2 (Addition): "THE SUSPECT WRITES WITH THEIR LEFT HAND"

$3662 + 4644 = 8306$ (T) · $4249 + 2627 = 6876$ (U) · $2359 + 2656 = 5015$ (C) · $5533 + 3002 = 8535$ (D) · $3134 + 1404 = 4538$ (E) · $3526 + 2955 = 6481$ (L) · $4832 + 2901 = 7733$ (R) · $1651 + 1004 = 2655$ (P) · $4343 + 4592 = 8935$ (N) · $1197 + 930 = 2127$ (F) · $4681 + 3993 = 8674$ (W) · $5260 + 4614 = 9874$ (A) · $4510 + 4677 = 9187$ (S) · $2876 + 2149 = 5025$ (I) · $4487 + 2229 = 6716$ (H)

Clue 3 (Subtraction): "THE SNEAK RUNS FROM PRIME NUMBERS"

$8586 - 2789 = 5797$ (T) · $4527 - 3054 = 1473$ (K) · $5920 - 55 = 5865$ (P) · $6648 - 2805 = 3843$ (S) · $10129 - 4647 = 5482$ (B) · $4090 - 2481 = 1609$ (H) · $4675 - 1729 = 2946$ (M) · $3868 - 432 = 3436$ (E) · $3484 - 399 = 3085$ (I) · $7987 - 529 = 7458$ (U) · $2117 - 511 = 1606$ (O) · $6563 - 3494 = 3069$ (R) · $9892 - 3737 = 6155$ (F) · $11988 - 3392 = 8596$ (N) · $9078 - 3701 = 5377$ (A)

Clue 4 (Multiplication facts (1-12)): "WE FOUND BRIGHT BLUE HAIR AT THE GRID"

$4 \times 4 = 16$ (W) · $10 \times 10 = 100$ (R) · $5 \times 4 = 20$ (A) · $9 \times 9 = 81$ (E) · $12 \times 8 = 96$ (U) · $8 \times 1 = 8$ (I) · $7 \times 6 = 42$ (O) · $10 \times 12 = 120$ (F) · $12 \times 7 = 84$ (L) · $5 \times 11 = 55$ (D) · $5 \times 5 = 25$ (H) · $7 \times 8 = 56$ (B) · $9 \times 12 = 108$ (T) · $11 \times 11 = 121$ (N) · $3 \times 1 = 3$ (G)

Clue 5 (Division facts (1-12)): surviving statement is box 4 → Mary Jackson

$35 \div 5 = 7$ · $18 \div 2 = 9$ · $10 \div 5 = 2$ · $24 \div 3 = 8$ · $6 \div 6 = 1$ · $50 \div 10 = 5$ · $96 \div 8 = 12$ · $33 \div 11 = 3$ · $110 \div 11 = 10$ · $30 \div 5 = 6$ · $33 \div 3 = 11$