



The Heist of the Prism Heart

Grade 10 math · Fractions of a number, Word problems, Rounding, Pythagorean theorem · Reading level grades 7-9

Detective: _____ Date: _____

The legendary Prism Heart diamond has vanished from the high-security Carbon Vault. The motion sensors were offline for exactly forty seconds, leaving behind only a trail of high-tech debris. Security needs you to analyze the digital clues, solve the math puzzles, and identify which rogue agent stole the jewel.

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 Agent is _____

Possible suspects

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

NAME	PRIMARY TOOL	SECURITY BYPASS METHOD	DOMINANT HAND	LEFTOVER FIBER COLOR	GEAR MALFUNCTION
Karat Vance	vibro-drill	decoy holo-emitters	right-handed	gold glitter thread	overheated power pack
Slick Sterling	plasma torch	hacked security drones	right-handed	silver wig fiber	overheated power pack
Dane Diamond	vibro-drill	magnetic boots	left-handed	gold glitter thread	overheated power pack
Roxy Rough	plasma torch	hacked security drones	left-handed	neon blue nylon strand	leaking hydraulic fluid
Victor Vault	sonic chisel	EMP interference	left-handed	gold glitter thread	leaking hydraulic fluid
Nova Prism	plasma torch	EMP interference	left-handed	neon blue nylon strand	shattered optic visor
Agent Kimberlite	vibro-drill	decoy holo-emitters	right-handed	silver wig fiber	shattered optic visor
Jasper Crest	plasma torch	EMP interference	left-handed	gold glitter thread	overheated power pack
Flint Luster	plasma torch	magnetic boots	right-handed	silver wig fiber	leaking hydraulic fluid
Gemma Stone	plasma torch	hacked security drones	right-handed	neon blue nylon strand	shattered optic visor
Piper Pyrite	liquid nitrogen spray	hacked security drones	right-handed	silver wig fiber	overheated power pack
Elena Carbon	sonic chisel	hacked security drones	left-handed	neon blue nylon strand	leaking hydraulic fluid
Jewel Jameson	sonic chisel	EMP interference	right-handed	neon blue nylon strand	leaking hydraulic fluid
Gideon Glint	plasma torch	EMP interference	right-handed	neon blue nylon strand	leaking hydraulic fluid
Beryl Brooks	liquid nitrogen spray	EMP interference	right-handed	gold glitter thread	leaking hydraulic fluid
Tristan Trellis	plasma torch	decoy holo-emitters	left-handed	neon blue nylon strand	leaking hydraulic fluid
Miles Matrix	sonic chisel	EMP interference	left-handed	neon blue nylon strand	leaking hydraulic fluid
Sloane Shimmer	plasma torch	EMP interference	left-handed	gold glitter thread	shattered optic visor
Sterling Spark	sonic chisel	decoy holo-emitters	right-handed	silver wig fiber	overheated power pack
Clara Carat	sonic chisel	magnetic boots	left-handed	neon blue nylon strand	leaking hydraulic fluid
Zane Quartz	vibro-drill	decoy holo-emitters	left-handed	neon blue nylon strand	leaking hydraulic fluid

CLUE 1
Fractions of a number

To narrow down our suspect list, we must catalog the museum's security badges. Calculate the fraction of active badges remaining to unlock the suspect database.

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

T															T
55	12	32	46	7	21	21	51	7	14	57	7	57	14	13	55
										T					
12	51	58	23	34	32	58	19	10	7	55	49	57	10	13	34

$2/4 \text{ of } 110 = \square \rightarrow \boxed{\text{T}}$

$6/10 \text{ of } 35 = \square \rightarrow \boxed{\text{L}}$

$1/8 \text{ of } 56 = \square \rightarrow \boxed{\text{I}}$

$1/4 \text{ of } 196 = \square \rightarrow \boxed{\text{Y}}$

$5/10 \text{ of } 116 = \square \rightarrow \boxed{\text{C}}$

$4/10 \text{ of } 115 = \square \rightarrow \boxed{\text{V}}$

$2/4 \text{ of } 64 = \square \rightarrow \boxed{\text{E}}$

$1/8 \text{ of } 184 = \square \rightarrow \boxed{\text{K}}$

$2/6 \text{ of } 39 = \square \rightarrow \boxed{\text{O}}$

$2/4 \text{ of } 28 = \square \rightarrow \boxed{\text{N}}$

$1/10 \text{ of } 120 = \square \rightarrow \boxed{\text{H}}$

$4/8 \text{ of } 38 = \square \rightarrow \boxed{\text{U}}$

$4/8 \text{ of } 20 = \square \rightarrow \boxed{\text{R}}$

$4/6 \text{ of } 51 = \square \rightarrow \boxed{\text{S}}$

$4/8 \text{ of } 114 = \square \rightarrow \boxed{\text{D}}$

$5/10 \text{ of } 102 = \square \rightarrow \boxed{\text{A}}$

Scratch space:

CLUE 2

Word problems

We found a pile of discarded technical gear near the escape hatch. Solving these inventory problems will tell us what the thief used to bypass the motion sensors.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was L D D .

81 75 64 42 96 112 79 75

There were 101 geiger counters. 20 were used up. How many geiger counters are left?

Answer: → L

There were 130 diamonds. 18 were used up. How many diamonds are left?

Answer: → A

Chief Geologist found 40 lenses yesterday and 56 more today. How many lenses in all?

Answer: → H

Chief Geologist found 12 diamonds yesterday and 67 more today. How many diamonds in all?

Answer: → N

Chief Geologist found 34 lasers yesterday and 41 more today. How many lasers in all?

Answer: → E

Chief Geologist lined up 7 rows of 6 geiger counters. How many geiger counters in all?

Answer: → T

Chief Geologist found 11 diamonds yesterday and 53 more today. How many diamonds in all?

Answer: → F

Scratch space:

CLUE 3

Rounding

The heat sensors on the safe recorded a temperature spike, but the low-tech system rounded the exact digits. Round the numbers to reveal the thief's escape path.

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

W														
200	3000	290	130	2000	50	3700	7000	110	2300	7000	5000	430	130	290

430	3000	7000	900	5000	50	300	170	4300	3700	2300	7000	2000	430	5000	1100

290	430	2000	5000	3700

Round 162 to the nearest hundred → **W**

Round 3,741 to the nearest hundred → **D**

Round 2,238 to the nearest thousand → **U**

Round 1,083 to the nearest hundred → **C**

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

Round 6,610 to the nearest thousand → **A**

Round 4,266 to the nearest hundred → **Y**

Round 109 to the nearest ten → **T**

Round 49 to the nearest ten → **N**

Round 289 to the nearest ten → **F**

Round 174 to the nearest ten → **H**

Round 432 to the nearest ten → **L**

Round 297 to the nearest hundred → **G**

Round 886 to the nearest hundred → **K**

Round 127 to the nearest ten → **O**

Round 4,510 to the nearest thousand → **I**

Round 3,245 to the nearest thousand → **E**

Scratch space:

CLUE 4

Pythagorean theorem

The thief crossed a courtyard guarded by intersecting security laser beams. Use the right-triangle formula to trace their path and locate the evidence they dropped.

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

A														
30	20	74	50	20	29	65	52	74	20	51	65	50	20	
			A				A							
5	41	68	30	20	13	10	30	5	85	20	41	39	74	58
														41

legs 18 and 24, hypotenuse = → **A**

legs 14 and 48, hypotenuse = → **O**

legs 5 and 12, hypotenuse = → **D**

legs 15 and 36, hypotenuse = → **H**

legs 9 and 40, hypotenuse = → **T**

legs 40 and 75, hypotenuse = → **I**

legs 3 and 4, hypotenuse = → **S**

legs 32 and 60, hypotenuse = → **R**

legs 24 and 70, hypotenuse = → **E**

legs 40 and 42, hypotenuse = → **V**

legs 20 and 21, hypotenuse = → **B**

legs 6 and 8, hypotenuse = → **W**

legs 24 and 45, hypotenuse = → **Y**

legs 25 and 60, hypotenuse = → **L**

legs 20 and 48, hypotenuse = → **U**

legs 12 and 16, hypotenuse = → **N**

Scratch space:

CLUE 5**Fractions of a number - the last clue**

We retrieved a shredded digital file containing the culprit's hair analysis. Determine the fraction of restored data packets to piece together the final lab report.

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:

$1/4 \text{ of } 16 = \boxed{}$

$2/6 \text{ of } 15 = \boxed{}$

$4/6 \text{ of } 18 = \boxed{}$

$1/8 \text{ of } 72 = \boxed{}$

$5/6 \text{ of } 12 = \boxed{}$

$5/10 \text{ of } 4 = \boxed{}$

$2/3 \text{ of } 12 = \boxed{}$

$1/5 \text{ of } 5 = \boxed{}$

$2/10 \text{ of } 15 = \boxed{}$

$2/8 \text{ of } 44 = \boxed{}$

$6/8 \text{ of } 8 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain bored through the vault wall with a vibro-drill, then opened the inner gate using cloned fingerprint keys.
2. The villain carved a clean hole with a laser glass cutter, then opened the inner gate using cloned fingerprint keys.
3. The villain carved a clean hole with a laser glass cutter, then disabled the alarm grid with EMP interference.
4. The villain melted the lock using a plasma torch, then scrambled the pursuit teams with decoy holo-emitters.
5. The villain shattered the casing with a sonic chisel, then disabled the alarm grid with EMP interference.
6. The villain melted the lock using a plasma torch, then disabled the alarm grid with EMP interference.
7. The villain shattered the casing with a sonic chisel, then scaled the elevator shaft using magnetic boots.
8. The villain froze the vault hinges with liquid nitrogen spray, then opened the inner gate using cloned fingerprint keys.
9. The villain melted the lock using a plasma torch, then scaled the elevator shaft using magnetic boots.
10. The villain shattered the casing with a sonic chisel, then opened the inner gate using cloned fingerprint keys.
11. The villain bored through the vault wall with a vibro-drill, then escaped the guards via hacked security drones.
12. The villain bored through the vault wall with a vibro-drill, then scrambled the pursuit teams with decoy holo-emitters.

Answer Key

The Heist of the Prism Heart

Culprit: Clara Carat

sonic chisel · magnetic boots · left-handed · neon blue nylon strand · leaking hydraulic fluid

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

Clue 1 (Fractions of a number): "THE VILLAIN DID NOT HACK SECURITY DRONES"

$\frac{2}{4}$ of 110 = 55 (T) · $\frac{6}{10}$ of 35 = 21 (L) · $\frac{1}{8}$ of 56 = 7 (I) · $\frac{1}{4}$ of 196 = 49 (Y) · $\frac{5}{10}$ of 116 = 58 (C) · $\frac{4}{10}$ of 115 = 46 (V) · $\frac{2}{4}$ of 64 = 32 (E) · $\frac{1}{8}$ of 184 = 23 (K) · $\frac{2}{6}$ of 39 = 13 (O) · $\frac{2}{4}$ of 28 = 14 (N) · $\frac{1}{10}$ of 120 = 12 (H) · $\frac{4}{8}$ of 38 = 19 (U) · $\frac{4}{8}$ of 20 = 10 (R) · $\frac{4}{6}$ of 51 = 34 (S) · $\frac{4}{8}$ of 114 = 57 (D) · $\frac{5}{10}$ of 102 = 51 (A)

Clue 2 (Word problems): "LEFT HANDED"

There were 101 geiger counters. 20 were used up. How many geiger counters are left? = 81 (L) · There were 130 diamonds. 18 were used up. How many diamonds are left? = 112 (A) · Chief Geologist found 40 lenses yesterday and 56 more today. How many lenses in all? = 96 (H) · Chief Geologist found 12 diamonds yesterday and 67 more today. How many diamonds in all? = 79 (N) · Chief Geologist found 34 lasers yesterday and 41 more today. How many lasers in all? = 75 (E) · Chief Geologist lined up 7 rows of 6 geiger counters. How many geiger counters in all? = 42 (T) · Chief Geologist found 11 diamonds yesterday and 53 more today. How many diamonds in all? = 64 (F)

Clue 3 (Rounding): "WE FOUND A TRAIL OF LEAKING HYDRAULIC FLUID"

Round 162 to the nearest hundred = 200 (W) · Round 3,741 to the nearest hundred = 3700 (D) · Round 2,238 to the nearest thousand = 2000 (U) · Round 1,083 to the nearest hundred = 1100 (C) · Round 2,340 to the nearest hundred = 2300 (R) · Round 6,610 to the nearest thousand = 7000 (A) · Round 4,266 to the nearest hundred = 4300 (Y) · Round 109 to the nearest ten = 110 (T) · Round 49 to the nearest ten = 50 (N) · Round 289 to the nearest ten = 290 (F) · Round 174 to the nearest ten = 170 (H) · Round 432 to the nearest ten = 430 (L) · Round 297 to the nearest hundred = 300 (G) · Round 886 to the nearest hundred = 900 (K) · Round 127 to the nearest ten = 130 (O) · Round 4,510 to the nearest thousand = 5000 (I) · Round 3,245 to the nearest thousand = 3000 (E)

Clue 4 (Pythagorean theorem): "A NEON BLUE NYLON STRAND WAS IN THE VENT"

legs 18 and 24, hypotenuse = 30 (A) · legs 14 and 48, hypotenuse = 50 (O) · legs 5 and 12, hypotenuse = 13 (D) · legs 15 and 36, hypotenuse = 39 (H) · legs 9 and 40, hypotenuse = 41 (T) · legs 40 and 75, hypotenuse = 85 (I) · legs 3 and 4, hypotenuse = 5 (S) · legs 32 and 60, hypotenuse = 68 (R) · legs 24 and 70, hypotenuse = 74 (E) · legs 40 and 42, hypotenuse = 58 (V) · legs 20 and 21, hypotenuse = 29 (B) · legs 6 and 8, hypotenuse = 10 (W) · legs 24 and 45, hypotenuse = 51 (Y) · legs 25 and 60, hypotenuse = 65 (L) · legs 20 and 48, hypotenuse = 52 (U) · legs 12 and 16, hypotenuse = 20 (N)

Clue 5 (Fractions of a number): surviving statement is box 7 → Clara Carat

$\frac{1}{4}$ of 16 = 4 · $\frac{2}{6}$ of 15 = 5 · $\frac{4}{6}$ of 18 = 12 · $\frac{1}{8}$ of 72 = 9 · $\frac{5}{6}$ of 12 = 10 · $\frac{5}{10}$ of 4 = 2 · $\frac{2}{3}$ of 12 = 8 · $\frac{1}{5}$ of 5 = 1 · $\frac{2}{10}$ of 15 = 3 · $\frac{2}{8}$ of 44 = 11 · $\frac{6}{8}$ of 8 = 6