The Lost Compass of Whispering Winds

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 7-9

Detective: _____ **Date:** _____

The expedition was almost complete when someone sneaked into the base camp and stole the legendary Golden Sextant! The camp was left in complete disarray. We have a list of twenty-four suspect archeologists and adventurers who were on the island at the time. We must analyze the physical clues left behind, map out their patterns, and find the culprit before they escape the island.

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 Explorer is _____

Possible suspects

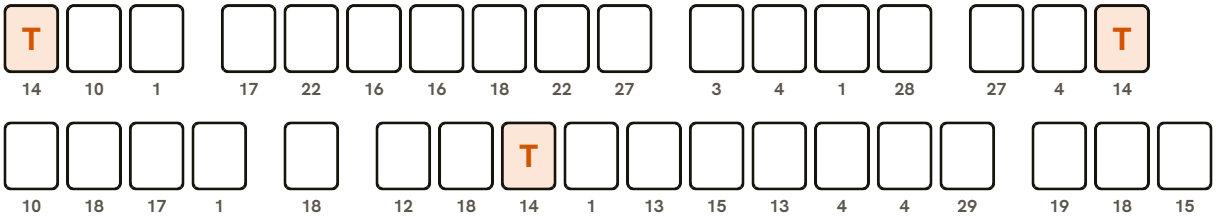
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	PRIMARY GEAR	BACKUP TOOL	PHYSICAL TELL	HAIR COLOR	VULNERABILITY
Steve Irwin	Deciphering Lens	Waterproof Map	Right-handed grip	Dusty blonde hair	Scented campfire smoke
Charles Lindbergh	Grappling Hook	Laser Pointer	Left-handed grip	Bright red hair	Bright flashlights
Nathan Drake	Climbing Crampons	Pocket Radio	Left-handed grip	Dusty blonde hair	Squeaky floorboards
Dr. Alan Grant	Deciphering Lens	Waterproof Map	Right-handed grip	Dusty blonde hair	Squeaky floorboards
Victor Sullivan	Climbing Crampons	Laser Pointer	Right-handed grip	Dusty blonde hair	Squeaky floorboards
Chloe Frazer	Deciphering Lens	Metal Detector	Right-handed grip	Bright red hair	Bright flashlights
Mary Kingsley	Grappling Hook	Pocket Radio	Right-handed grip	Dusty blonde hair	Squeaky floorboards
Amelia Earhart	Smoke Pellets	Laser Pointer	Right-handed grip	Dusty blonde hair	Scented campfire smoke
Haroun Tazieff	Climbing Crampons	Metal Detector	Left-handed grip	Bright red hair	Squeaky floorboards
Roy Chapman	Sonic Compass	Waterproof Map	Right-handed grip	Dark brown hair	Squeaky floorboards
Professor Challenger	Sonic Compass	Pocket Radio	Right-handed grip	Dark brown hair	Squeaky floorboards
Percy Fawcett	Climbing Crampons	Mini Drone	Left-handed grip	Dark brown hair	Squeaky floorboards
Kira Shaw	Grappling Hook	Mini Drone	Left-handed grip	Dark brown hair	Squeaky floorboards
Nellie Bly	Grappling Hook	Laser Pointer	Left-handed grip	Bright red hair	Squeaky floorboards
Sallie Gardner	Deciphering Lens	Metal Detector	Right-handed grip	Dark brown hair	Scented campfire smoke
Dr. Indiana Jones	Deciphering Lens	Mini Drone	Right-handed grip	Bright red hair	Bright flashlights
Evelyn Carnahan	Climbing Crampons	Pocket Radio	Right-handed grip	Bright red hair	Bright flashlights
Jacques Cousteau	Grappling Hook	Metal Detector	Right-handed grip	Dusty blonde hair	Squeaky floorboards
Lara Croft	Climbing Crampons	Mini Drone	Right-handed grip	Bright red hair	Bright flashlights
Elena Fisher	Climbing Crampons	Mini Drone	Left-handed grip	Dusty blonde hair	Squeaky floorboards
Matthew Henson	Sonic Compass	Pocket Radio	Right-handed grip	Dusty blonde hair	Squeaky floorboards

CLUE 1 Integers

> To track the thief's escape path, we look at the altimeter log. The device recorded several climbs and drops through the mountain caves. We need to calculate the final elevation by combining these positive and negative changes.

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



4 - (-10) = ☐ → **T**

9 - (-3) = ☐ → **W**

(-8) + 36 = ☐ → **S**

(-3) + 22 = ☐ → **M**

(-9) + 13 = ☐ → **O**

14 - (-8) = ☐ → **I**

(-6) + 7 = ☐ → **E**

24 - (-3) = ☐ → **N**

5 - (-12) = ☐ → **V**

(-4) + 20 = ☐ → **L**

(-8) + 11 = ☐ → **D**

(-5) + 20 = ☐ → **P**

4 - (-9) = ☐ → **R**

3 - (-15) = ☐ → **A**

(-4) + 33 = ☐ → **F**

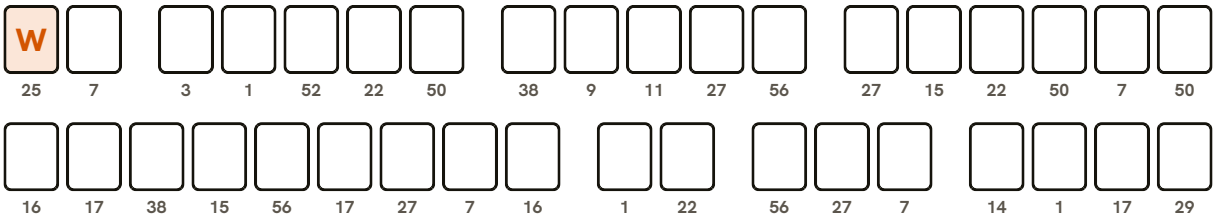
8 - (-2) = ☐ → **H**

Scratch space:

CLUE 2 Percentages

> The thief left behind a half-drained portable battery pack. By comparing the remaining charge percentage to the device's total runtime, we can calculate exactly how many minutes the thief was operating near our tents.

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



50% of 50 = ☐ → W

5% of 760 = ☐ → R

50% of 104 = ☐ → U

5% of 300 = ☐ → A

25% of 116 = ☐ → K

50% of 44 = ☐ → N

10% of 170 = ☐ → C

40% of 140 = ☐ → T

20% of 5 = ☐ → O

25% of 44 = ☐ → G

20% of 250 = ☐ → D

40% of 40 = ☐ → S

60% of 15 = ☐ → I

40% of 35 = ☐ → L

5% of 540 = ☐ → H

25% of 12 = ☐ → F

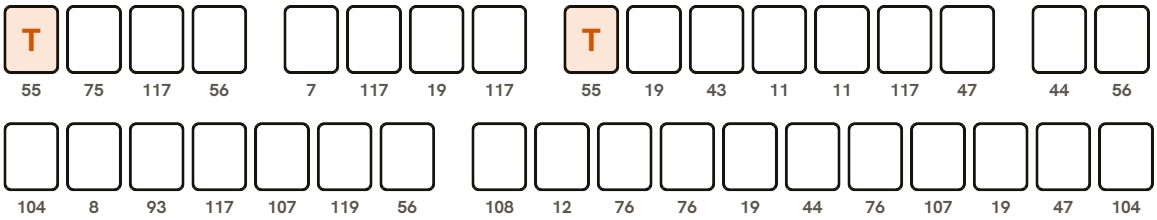
25% of 28 = ☐ → E

Scratch space:

CLUE 3 Order of operations

We found an encrypted keypad on the temple door where the thief fled. The security lock requires us to simplify a complex mathematical expression using the correct sequence of steps to reveal the override code.

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



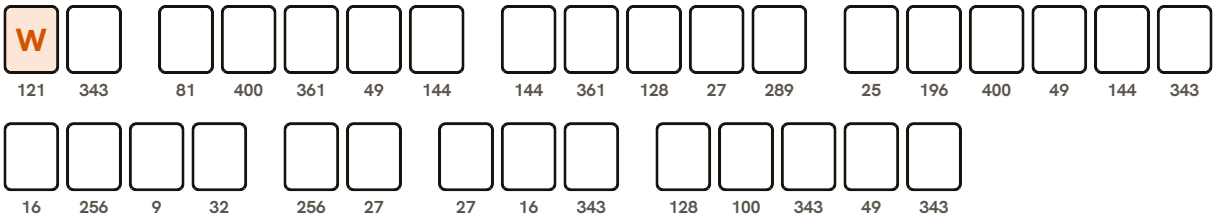
7 × 10 - 15 = ☐ → T	9 × 10 - 15 = ☐ → H	7 × 9 - 7 = ☐ → Y
17 + 3 × 9 = ☐ → B	2 + 3 × 2 = ☐ → Q	48 + 9 × 5 = ☐ → U
3 + 4 × 2 = ☐ → P	9 × 11 - 23 = ☐ → O	12 × 11 - 13 = ☐ → K
10 × 11 - 6 = ☐ → S	2 × 8 - 9 = ☐ → W	75 + 7 × 6 = ☐ → E
23 + 8 × 3 = ☐ → D	11 × 10 - 2 = ☐ → F	5 + 2 × 7 = ☐ → R
9 × 2 - 6 = ☐ → L	29 + 7 × 2 = ☐ → I	82 + 5 × 5 = ☐ → A

Scratch space:

CLUE 4 Exponents

> The camp's motion sensors record signals that multiply exponentially with each zone crossed. By calculating the total sensor pings written as powers, we can estimate how fast the thief was running.

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



11^2 = ☐ → W

19^2 = ☐ → U

5^2 = ☐ → B

7^2 = ☐ → N

10^2 = ☐ → C

12^2 = ☐ → D

20^2 = ☐ → O

14^2 = ☐ → L

2^7 = ☐ → S

3^3 = ☐ → T

7^3 = ☐ → E

3^2 = ☐ → I

17^2 = ☐ → Y

2^5 = ☐ → R

4^2 = ☐ → H

4^4 = ☐ → A

9^2 = ☐ → F

Scratch space:

CLUE 5 Two-step equations - the last clue

> The thief rented a getaway jeep from the island port, which charges a flat booking fee plus a fixed rate per mile. By analyzing the total receipt found in the trash, we can set up an equation to find the exact distance they drove.

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:

5x + 5 = 35, x = ☐	6x + 12 = 54, x = ☐	5x + 4 = 9, x = ☐	3x + 3 = 30, x = ☐
2x + 3 = 23, x = ☐	2x + 4 = 28, x = ☐	6x + 7 = 55, x = ☐	5x + 5 = 25, x = ☐
3x + 9 = 24, x = ☐	5x + 4 = 59, x = ☐	5x + 12 = 27, x = ☐	

Step 2 - cross out the sentence with each answer:

1. The villain navigated the dark tunnels with a sonic compass, then jammed the security frequency with a pocket radio.
2. The villain escaped using a grappling hook, then jammed the security frequency with a pocket radio.
3. The villain navigated the dark tunnels with a sonic compass, then blinded the guard dog with a laser pointer.
4. The villain escaped using a grappling hook, then blinded the guard dog with a laser pointer.
5. The villain cracked the lock with a deciphering lens, then jammed the security frequency with a pocket radio.
6. The villain escaped using a grappling hook, then searched the campsite using a metal detector.
7. The villain scaled the stone wall using climbing crampons, then blinded the guard dog with a laser pointer.
8. The villain scaled the stone wall using climbing crampons, then plotted a quick escape on a waterproof map.
9. The villain navigated the dark tunnels with a sonic compass, then scouted the camp perimeter with a mini drone.
10. The villain navigated the dark tunnels with a sonic compass, then searched the campsite using a metal detector.
11. The villain vanished behind a cloud of smoke pellets, then searched the campsite using a metal detector.
12. The villain escaped using a grappling hook, then scouted the camp perimeter with a mini drone.

TEACHER / PARENT

Answer Key

The Lost Compass of Whispering Winds

Culprit: Mary Kingsley

Grappling Hook · Pocket Radio · Right-handed grip · Dusty blonde hair · Squeaky floorboards

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE VILLAIN DOES NOT HAVE A WATERPROOF MAP"

4 - (-10) = 14 (T) · 9 - (-3) = 12 (W) · (-8) + 36 = 28 (S) · (-3) + 22 = 19 (M) · (-9) + 13 = 4 (O) · 14 - (-8) = 22 (I) · (-6) + 7 = 1 (E) · 24 - (-3) = 27 (N) · 5 - (-12) = 17 (V) · (-4) + 20 = 16 (L) · (-8) + 11 = 3 (D) · (-5) + 20 = 15 (P) · 4 - (-9) = 13 (R) · 3 - (-15) = 18 (A) · (-4) + 33 = 29 (F) · 8 - (-2) = 10 (H)

Clue 2 (Percentages): "WE FOUND RIGHT HANDED SCRATCHES ON THE LOCK"

50% of 50 = 25 (W) · 5% of 760 = 38 (R) · 50% of 104 = 52 (U) · 5% of 300 = 15 (A) · 25% of 116 = 29 (K) · 50% of 44 = 22 (N) · 10% of 170 = 17 (C) · 40% of 140 = 56 (T) · 20% of 5 = 1 (O) · 25% of 44 = 11 (G) · 20% of 250 = 50 (D) · 40% of 40 = 16 (S) · 60% of 15 = 9 (I) · 40% of 35 = 14 (L) · 5% of 540 = 27 (H) · 25% of 12 = 3 (F) · 25% of 28 = 7 (E)

Clue 3 (Order of operations): "THEY WERE TRIPPED BY SQUEAKY FLOORBOARDS"

7 × 10 - 15 = 55 (T) · 9 × 10 - 15 = 75 (H) · 7 × 9 - 7 = 56 (Y) · 17 + 3 × 9 = 44 (B) · 2 + 3 × 2 = 8 (Q) · 48 + 9 × 5 = 93 (U) · 3 + 4 × 2 = 11 (P) · 9 × 11 - 23 = 76 (O) · 12 × 11 - 13 = 119 (K) · 10 × 11 - 6 = 104 (S) · 2 × 8 - 9 = 7 (W) · 75 + 7 × 6 = 117 (E) · 23 + 8 × 3 = 47 (D) · 11 × 10 - 2 = 108 (F) · 5 + 2 × 7 = 19 (R) · 9 × 2 - 6 = 12 (L) · 29 + 7 × 2 = 43 (I) · 82 + 5 × 5 = 107 (A)

Clue 4 (Exponents): "WE FOUND DUSTY BLONDE HAIR AT THE SCENE"

11^2 = 121 (W) · 19^2 = 361 (U) · 5^2 = 25 (B) · 7^2 = 49 (N) · 10^2 = 100 (C) · 12^2 = 144 (D) · 20^2 = 400 (O) · 14^2 = 196 (L) · 2^7 = 128 (S) · 3^3 = 27 (T) · 7^3 = 343 (E) · 3^2 = 9 (I) · 17^2 = 289 (Y) · 2^5 = 32 (R) · 4^2 = 16 (H) · 4^4 = 256 (A) · 9^2 = 81 (F)

Clue 5 (Two-step equations): surviving statement is box 2 → Mary Kingsley

5x + 5 = 35, x = 6 · 6x + 12 = 54, x = 7 · 5x + 4 = 9, x = 1 · 3x + 3 = 30, x = 9 · 2x + 3 = 23, x = 10 · 2x + 4 = 28, x = 12 · 6x + 7 = 55, x = 8 · 5x + 5 = 25, x = 4 · 3x + 9 = 24, x = 5 · 5x + 4 = 59, x = 11 · 5x + 12 = 27, x = 3