



The Canopy Island Heist

Grade 10 math · Pythagorean theorem, Square roots, Exponents, Order of operations · Reading level grades 7-9

Detective: _____ Date: _____

A rogue explorer has stolen the golden Sky-Map from the Canopy Island vault! The Head Archivist needs your help to track down the suspect before they escape the island on a sea-plane.

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	SECONDARY GEAR	WRITING HAND	HEADWEAR FIBER	DEFENSE HAZARD
Gertrude Bell	Glider Cloak	Holo-Map	Right-Handed Writer	Dusty Blonde Beanie	Rope Snare
Steve Irwin	Laser Compass	Climbing Claws	Right-Handed Writer	Dusty Blonde Beanie	Rope Snare
Ernest Shackleton	Grapple Hook	Holo-Map	Left-Handed Writer	Bright Red Cap	Flashlight Beam
James Cook	Grapple Hook	Thermal Goggles	Right-Handed Writer	Dusty Blonde Beanie	Rope Snare
Charles Darwin	Pulse Scanner	Shock Net	Left-Handed Writer	Dusty Blonde Beanie	Mud Trap
Matthew Henson	Sonic Whistle	Shock Net	Right-Handed Writer	Bright Red Cap	Rope Snare
Thor Heyerdahl	Sonic Whistle	Holo-Map	Left-Handed Writer	Dark Brown Fedora	Flashlight Beam
Edmund Hillary	Sonic Whistle	Climbing Claws	Left-Handed Writer	Dusty Blonde Beanie	Mud Trap
Jane Goodall	Sonic Whistle	Thermal Goggles	Left-Handed Writer	Bright Red Cap	Flashlight Beam
Sally Ride	Sonic Whistle	Thermal Goggles	Right-Handed Writer	Bright Red Cap	Mud Trap
Mary Kingsley	Glider Cloak	Shock Net	Left-Handed Writer	Bright Red Cap	Rope Snare
Jacques Cousteau	Sonic Whistle	Climbing Claws	Left-Handed Writer	Dusty Blonde Beanie	Rope Snare
Bessie Coleman	Sonic Whistle	Decoy Flare	Right-Handed Writer	Dusty Blonde Beanie	Mud Trap
Sacagawea	Sonic Whistle	Shock Net	Right-Handed Writer	Dark Brown Fedora	Rope Snare
Robert Peary	Laser Compass	Shock Net	Left-Handed Writer	Dark Brown Fedora	Mud Trap
Mae Jemison	Grapple Hook	Shock Net	Right-Handed Writer	Dark Brown Fedora	Flashlight Beam
Ranulph Fiennes	Sonic Whistle	Thermal Goggles	Left-Handed Writer	Dark Brown Fedora	Rope Snare
Nellie Bly	Sonic Whistle	Shock Net	Left-Handed Writer	Dark Brown Fedora	Mud Trap
Amelia Earhart	Sonic Whistle	Decoy Flare	Right-Handed Writer	Dusty Blonde Beanie	Rope Snare
Roald Amundsen	Pulse Scanner	Holo-Map	Left-Handed Writer	Bright Red Cap	Flashlight Beam
Sylvia Earle	Grapple Hook	Decoy Flare	Right-Handed Writer	Dusty Blonde Beanie	Rope Snare

CLUE 1 Pythagorean theorem

To map the diagonal escape vector from the vault to the jungle canopy, we must calculate the hypotenuse of the suspect's path.

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

The diagram shows two rows of boxes. The top row has 18 boxes, with the first and last boxes containing the letter 'T' and orange shading. The bottom row has 12 boxes. Numbers are placed below the boxes in the top row, and below the boxes in the bottom row.

Box Index	Top Row Content	Top Row Number	Bottom Row Content	Bottom Row Number
1	T	51		15
2		65		29
3		30		13
4		41		13
5		37		74
6		82		29
7		82		65
8		29		52
9		37		82
10		39		52
11		58		50
12		52		29
13		30		5
14		111		
15		39		
16		52		
17	T	51		

legs 24 and 45, hypotenuse = $\rightarrow$ **T**

legs 24 and 70, hypotenuse = $\rightarrow$ **Y**

legs 30 and 40, hypotenuse = → **M**

legs 25 and 60, hypotenuse = $\rightarrow$ **H**

legs 18 and 24, hypotenuse = → **E**

legs 12 and 35, hypotenuse = $\rightarrow$ |

legs 15 and 36, hypotenuse = → **N**

legs 36 and 105, hypotenuse = $\rightarrow$ **S**

legs 20 and 48, hypotenuse = $\rightarrow$

legs 5 and 12, hypotenuse = → **R**

legs 9 and 12, hypotenuse = → **C**

legs 40 and 42, hypotenuse = → **D**

legs 18 and 80, hypotenuse = → **L**

legs 20 and 21, hypotenuse = → **A**

legs 3 and 4, hypotenuse = $\rightarrow$ **P**

legs 9 and 40, hypotenuse = $\rightarrow$ **V**

Scratch space:

CLUE 2 Square roots

The security grid has locked down a perfect square-shaped sector of the jungle, and finding the side length reveals the camera logs.

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

T									T				T		
22	5	20	25	9	25	18	20	17	22	2	21	13	22	20	15
		T				T		T							T
8	13	22	20	2	24	22	5	22	5	20	21	24	6	5	22
5	15	8	10												

$\sqrt{484} = \square \rightarrow \boxed{\text{T}}$	$\sqrt{225} = \square \rightarrow \boxed{\text{A}}$	$\sqrt{324} = \square \rightarrow \boxed{\text{P}}$
$\sqrt{169} = \square \rightarrow \boxed{\text{O}}$	$\sqrt{441} = \square \rightarrow \boxed{\text{R}}$	$\sqrt{400} = \square \rightarrow \boxed{\text{E}}$
$\sqrt{64} = \square \rightarrow \boxed{\text{N}}$	$\sqrt{25} = \square \rightarrow \boxed{\text{H}}$	$\sqrt{4} = \square \rightarrow \boxed{\text{W}}$
$\sqrt{289} = \square \rightarrow \boxed{\text{C}}$	$\sqrt{81} = \square \rightarrow \boxed{\text{U}}$	$\sqrt{36} = \square \rightarrow \boxed{\text{G}}$
$\sqrt{576} = \square \rightarrow \boxed{\text{I}}$	$\sqrt{100} = \square \rightarrow \boxed{\text{D}}$	$\sqrt{625} = \square \rightarrow \boxed{\text{S}}$

Scratch space:

CLUE 3 Exponents

The backup power vault uses an exponential battery grid, where resolving the power growth levels unlocks the suspect's biometric profile.

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

T																	
625	9	441	25	243	36	216	441	225	125	49	625	25	729	343	343	441	289
400	512	125	25	243	343	441	49	324	125	25	441						

$5^4 = \square \rightarrow \text{T}$	$7^2 = \square \rightarrow \text{S}$	$7^3 = \square \rightarrow \text{P}$	$21^2 = \square \rightarrow \text{E}$
$6^2 = \square \rightarrow \text{G}$	$5^3 = \square \rightarrow \text{A}$	$3^2 = \square \rightarrow \text{H}$	$2^9 = \square \rightarrow \text{Y}$
$15^2 = \square \rightarrow \text{W}$	$6^3 = \square \rightarrow \text{U}$	$20^2 = \square \rightarrow \text{B}$	$3^6 = \square \rightarrow \text{I}$
$5^2 = \square \rightarrow \text{R}$	$3^5 = \square \rightarrow \text{O}$	$17^2 = \square \rightarrow \text{D}$	$18^2 = \square \rightarrow \text{N}$

Scratch space:

CLUE 4

Order of operations

To reboot the main security console, you must solve the system overrides in the exact correct mathematical order.

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

A																
113	98	73	84	92	87	56	31	75	39	98	21	64	53	56	21	104
											A					
59	31	73	39	67	92	75	92	46	21	31	113	92	59	46		

$95 + 9 \times 2 = \square \rightarrow \boxed{\text{A}}$

$7 \times 8 - 17 = \square \rightarrow \boxed{\text{N}}$

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

$22 + 3 \times 3 = \square \rightarrow \boxed{\text{L}}$

$12 \times 7 - 28 = \square \rightarrow \boxed{\text{B}}$

$10 \times 12 - 28 = \square \rightarrow \boxed{\text{T}}$

$7 \times 7 - 3 = \square \rightarrow \boxed{\text{H}}$

$9 \times 4 - 15 = \square \rightarrow \boxed{\text{E}}$

$9 \times 11 - 24 = \square \rightarrow \boxed{\text{O}}$

$9 \times 10 - 23 = \square \rightarrow \boxed{\text{G}}$

$9 \times 10 - 26 = \square \rightarrow \boxed{\text{F}}$

$38 + 7 \times 7 = \square \rightarrow \boxed{\text{Y}}$

$43 + 2 \times 5 = \square \rightarrow \boxed{\text{I}}$

$9 \times 11 - 1 = \square \rightarrow \boxed{\text{D}}$

$80 + 6 \times 4 = \square \rightarrow \boxed{\text{R}}$

$11 \times 10 - 26 = \square \rightarrow \boxed{\text{S}}$

$7 \times 11 - 4 = \square \rightarrow \boxed{\text{U}}$

Scratch space:

CLUE 5**Square roots - the last clue**

The escape runway's wind-shear array is calculating its safe threshold, requiring us to find the root of the sensor grid.

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:

$\text{sqrt}(9) = \boxed{}$

$\text{sqrt}(4) = \boxed{}$

$\text{sqrt}(1) = \boxed{}$

$\text{sqrt}(25) = \boxed{}$

$\text{sqrt}(121) = \boxed{}$

$\text{sqrt}(36) = \boxed{}$

$\text{sqrt}(64) = \boxed{}$

$\text{sqrt}(81) = \boxed{}$

$\text{sqrt}(16) = \boxed{}$

$\text{sqrt}(49) = \boxed{}$

$\text{sqrt}(144) = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain blew a sonic whistle to disorient the guard dogs, then tossed a decoy flare to distract the patrol drone.
2. The villain fired a grapple hook to scale the high stone wall, then tossed a decoy flare to distract the patrol drone.
3. The villain fired a grapple hook to scale the high stone wall, then used thermal goggles to navigate the pitch-black vent.
4. The villain deployed a glider cloak to drift down from the balcony, then consulted a holo-map to find the fastest escape route.
5. The villain used a laser compass to cut through the glass dome, then consulted a holo-map to find the fastest escape route.
6. The villain deployed a glider cloak to drift down from the balcony, then tossed a decoy flare to distract the patrol drone.
7. The villain activated a pulse scanner to bypass the lasers, then tossed a decoy flare to distract the patrol drone.
8. The villain blew a sonic whistle to disorient the guard dogs, then shot a shock net to disable the pressure pad.
9. The villain used a laser compass to cut through the glass dome, then shot a shock net to disable the pressure pad.
10. The villain used a laser compass to cut through the glass dome, then equipped climbing claws to scramble over the security fence.
11. The villain fired a grapple hook to scale the high stone wall, then shot a shock net to disable the pressure pad.
12. The villain blew a sonic whistle to disorient the guard dogs, then equipped climbing claws to scramble over the security fence.

Answer Key

The Canopy Island Heist

Culprit: Steve Irwin

Laser Compass · Climbing Claws · Right-Handed Writer · Dusty Blonde Beanie · Rope Snare

Trail: Start 21 → Clue 1 17 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE VILLAIN DOES NOT CARRY A HOLO MAP"

legs 24 and 45, hypotenuse = 51 (T) · legs 24 and 70, hypotenuse = 74 (Y) · legs 30 and 40, hypotenuse = 50 (M) · legs 25 and 60, hypotenuse = 65 (H) · legs 18 and 24, hypotenuse = 30 (E) · legs 12 and 35, hypotenuse = 37 (I) · legs 15 and 36, hypotenuse = 39 (N) · legs 36 and 105, hypotenuse = 111 (S) · legs 20 and 48, hypotenuse = 52 (O) · legs 5 and 12, hypotenuse = 13 (R) · legs 9 and 12, hypotenuse = 15 (C) · legs 40 and 42, hypotenuse = 58 (D) · legs 18 and 80, hypotenuse = 82 (L) · legs 20 and 21, hypotenuse = 29 (A) · legs 3 and 4, hypotenuse = 5 (P) · legs 9 and 40, hypotenuse = 41 (V)

Clue 2 (Square roots): "THE SUSPECT WROTE A NOTE WITH THE RIGHT HAND"

$\sqrt{484} = 22$ (T) · $\sqrt{225} = 15$ (A) · $\sqrt{324} = 18$ (P) · $\sqrt{169} = 13$ (O) · $\sqrt{441} = 21$ (R) · $\sqrt{400} = 20$ (E) · $\sqrt{64} = 8$ (N) · $\sqrt{25} = 5$ (H) · $\sqrt{4} = 2$ (W) · $\sqrt{289} = 17$ (C) · $\sqrt{81} = 9$ (U) · $\sqrt{36} = 6$ (G) · $\sqrt{576} = 24$ (I) · $\sqrt{100} = 10$ (D) · $\sqrt{625} = 25$ (S)

Clue 3 (Exponents): "THE ROGUE WAS TRIPPED BY A ROPE SNARE"

$5^4 = 625$ (T) · $7^2 = 49$ (S) · $7^3 = 343$ (P) · $21^2 = 441$ (E) · $6^2 = 36$ (G) · $5^3 = 125$ (A) · $3^2 = 9$ (H) · $2^9 = 512$ (Y) · $15^2 = 225$ (W) · $6^3 = 216$ (U) · $20^2 = 400$ (B) · $3^6 = 729$ (I) · $5^2 = 25$ (R) · $3^5 = 243$ (O) · $17^2 = 289$ (D) · $18^2 = 324$ (N)

Clue 4 (Order of operations): "A DUSTY BLONDE FIBER CLUNG TO THE LATCH"

$95 + 9 \times 2 = 113$ (A) · $7 \times 8 - 17 = 39$ (N) · $10 + 7 \times 7 = 59$ (C) · $22 + 3 \times 3 = 31$ (L) · $12 \times 7 - 28 = 56$ (B) · $10 \times 12 - 28 = 92$ (T) · $7 \times 7 - 3 = 46$ (H) · $9 \times 4 - 15 = 21$ (E) · $9 \times 11 - 24 = 75$ (O) · $9 \times 10 - 23 = 67$ (G) · $9 \times 10 - 26 = 64$ (F) · $38 + 7 \times 7 = 87$ (Y) · $43 + 2 \times 5 = 53$ (I) · $9 \times 11 - 1 = 98$ (D) · $80 + 6 \times 4 = 104$ (R) · $11 \times 10 - 26 = 84$ (S) · $7 \times 11 - 4 = 73$ (U)

Clue 5 (Square roots): surviving statement is box 10 → Steve Irwin

$\sqrt{9} = 3$ · $\sqrt{4} = 2$ · $\sqrt{1} = 1$ · $\sqrt{25} = 5$ · $\sqrt{121} = 11$ · $\sqrt{36} = 6$ · $\sqrt{64} = 8$ · $\sqrt{81} = 9$ · $\sqrt{16} = 4$ · $\sqrt{49} = 7$ · $\sqrt{144} = 12$