



The Mystery of Sunken Island

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone locked the Head Camp Ranger inside the island watchtower and scrambled the trail markers! Solve the math clues around camp to unmask the rogue explorer.

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	GLOVE HABIT	HELMET COLOR	STOPPED BY
Navigator Nora	Night Goggles	Mini Drone	Right Glove	Neon Green Helmet	Loud Whistle
Diver Daisy	Pocket Compass	Rope Launcher	Left Glove	Neon Green Helmet	Loud Whistle
Officer Leo	Zip Line Glider	Rope Launcher	Right Glove	Bright Orange Helmet	Muddy Puddle
Hiker Hannah	Night Goggles	Signal Flare	Left Glove	Silver Blue Helmet	Bright Flashlight
Officer Owen	Pocket Compass	Signal Flare	Left Glove	Bright Orange Helmet	Loud Whistle
Explorer Ethan	Pocket Compass	Mini Drone	Right Glove	Bright Orange Helmet	Bright Flashlight
Cadet Maya	Pocket Compass	Portable Ladder	Right Glove	Neon Green Helmet	Bright Flashlight
Guide Grace	Zip Line Glider	Rope Launcher	Right Glove	Bright Orange Helmet	Loud Whistle
Cadet Chloe	Grappling Hook	Signal Flare	Left Glove	Neon Green Helmet	Muddy Puddle
Rover Ruby	Pocket Compass	Laser Torch	Left Glove	Bright Orange Helmet	Bright Flashlight
Captain Carl	Pocket Compass	Signal Flare	Left Glove	Neon Green Helmet	Bright Flashlight
Tracker Tori	Night Goggles	Laser Torch	Left Glove	Bright Orange Helmet	Loud Whistle
Pilot Paige	Grappling Hook	Signal Flare	Left Glove	Bright Orange Helmet	Bright Flashlight
Captain Clara	Zip Line Glider	Laser Torch	Left Glove	Bright Orange Helmet	Loud Whistle
Hunter Hugo	Night Goggles	Laser Torch	Left Glove	Bright Orange Helmet	Bright Flashlight
Ranger Rick	Smoke Bomb	Signal Flare	Left Glove	Bright Orange Helmet	Bright Flashlight
Ranger Reed	Pocket Compass	Mini Drone	Left Glove	Neon Green Helmet	Bright Flashlight
Sailor Seth	Zip Line Glider	Portable Ladder	Left Glove	Bright Orange Helmet	Bright Flashlight
Runner Ryan	Smoke Bomb	Signal Flare	Right Glove	Bright Orange Helmet	Muddy Puddle
Climber Cole	Night Goggles	Laser Torch	Right Glove	Bright Orange Helmet	Bright Flashlight
Scout Sam	Zip Line Glider	Mini Drone	Left Glove	Bright Orange Helmet	Bright Flashlight

CLUE 1

Ranger Rick checks the altimeter log. The island trail climbs up and down steep cliffs. Solve the integer puzzle to find clue one.

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

A 2x10 grid of boxes. The top row contains the following values from left to right: 'T' (orange), empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty. The bottom row contains the following values from left to right: empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty. Below each box is a number. The top row numbers are: 18, 4, 9, 15, 1, 11, 11, 23, 1, 5, 28, 30, 9, 26, 5, 30, 18. The bottom row numbers are: 3, 26, 9, 23, 26, 1, 14, 5, 23, 11, 2, 11, 23, 12, 9.

T																			
18	4	9	15	1	11	11	23	1	5	28	30	9	26	5	30	18			
3	26	9	23	26	1	14	5	23	11	2	11	23	12	9					

$$(-13) + 31 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$(-13) + 28 = \boxed{} \rightarrow \mathbf{v}$$

$$4 - (-10) = \boxed{} \rightarrow \text{G}$$

$$(-9) + 14 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$(-7) + 8 = \boxed{} \rightarrow \boxed{1}$$

$$(-9) + 39 = \boxed{} \rightarrow \boxed{0}$$

$$(-10) + 14 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$(-10) + 33 = \boxed{} \rightarrow \mathbf{A}$$

$$(-1) + 13 = \boxed{} \rightarrow \mathbf{R}$$

$7 - (-2) = \boxed{} \rightarrow \boxed{\text{E}}$

$25 - (-1) = \boxed{} \rightarrow \boxed{\text{S}}$

$$27 - (-1) = \boxed{} \rightarrow \boxed{\mathbf{D}}$$

$$7 - (-4) = \boxed{} \rightarrow \boxed{\text{L}}$$

$$(-4) + 6 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$(-10) + 13 = \boxed{} \rightarrow \boxed{\mathbf{U}}$$

Scratch space:

CLUE 2 Percentages

Cadet Maya inspects the scout radio battery. The charge drops as signal scans complete. Calculate the percentages to reveal clue two.

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

T										T					
57	13	10	52	24	52	12	10	11	57	25	1	46	10	51	
													T		
52	55	42	18	36	10	18	36	1	58	10	1	42	57	13	10
			T												
36	10	39	57	13	51	42	3								

$50\% \text{ of } 114 = \square \rightarrow \boxed{\text{T}}$

$10\% \text{ of } 10 = \square \rightarrow \boxed{\text{O}}$

$50\% \text{ of } 92 = \square \rightarrow \boxed{\text{R}}$

$10\% \text{ of } 550 = \square \rightarrow \boxed{\text{I}}$

$25\% \text{ of } 232 = \square \rightarrow \boxed{\text{V}}$

$25\% \text{ of } 96 = \square \rightarrow \boxed{\text{U}}$

$25\% \text{ of } 100 = \square \rightarrow \boxed{\text{W}}$

$5\% \text{ of } 220 = \square \rightarrow \boxed{\text{C}}$

$25\% \text{ of } 156 = \square \rightarrow \boxed{\text{F}}$

$40\% \text{ of } 90 = \square \rightarrow \boxed{\text{L}}$

$75\% \text{ of } 68 = \square \rightarrow \boxed{\text{A}}$

$50\% \text{ of } 26 = \square \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 200 = \square \rightarrow \boxed{\text{E}}$

$60\% \text{ of } 20 = \square \rightarrow \boxed{\text{P}}$

$40\% \text{ of } 130 = \square \rightarrow \boxed{\text{S}}$

$5\% \text{ of } 60 = \square \rightarrow \boxed{\text{D}}$

$20\% \text{ of } 90 = \square \rightarrow \boxed{\text{G}}$

$5\% \text{ of } 840 = \square \rightarrow \boxed{\text{N}}$

Scratch space:

CLUE 3
Order of operations

Officer Leo finds a coded keypad on the supply locker. You must follow the exact order of steps to solve the code for clue three.

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

A									A							
79	76	45	39	119	21	58	49	118	79	54	21	118	39	119	21	58
76	118	39	115	95	48	95	58	21	48	45	32	119	86	48		
48	66	50	118	32	45	48	45									

$55 + 6 \times 4 = \square \rightarrow \text{A}$

$67 + 6 \times 8 = \square \rightarrow \text{N}$

$12 \times 9 - 13 = \square \rightarrow \text{D}$

$12 \times 11 - 13 = \square \rightarrow \text{G}$

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

$5 \times 12 - 6 = \square \rightarrow \text{S}$

$2 + 7 \times 8 = \square \rightarrow \text{T}$

$59 + 9 \times 3 = \square \rightarrow \text{U}$

$12 \times 5 - 28 = \square \rightarrow \text{O}$

$94 + 3 \times 8 = \square \rightarrow \text{L}$

$9 \times 9 - 15 = \square \rightarrow \text{X}$

$8 \times 8 - 16 = \square \rightarrow \text{E}$

$8 \times 8 - 19 = \square \rightarrow \text{R}$

$3 \times 9 - 6 = \square \rightarrow \text{H}$

$7 \times 8 - 7 = \square \rightarrow \text{F}$

$11 \times 7 - 1 = \square \rightarrow \text{B}$

$9 \times 8 - 22 = \square \rightarrow \text{P}$

Scratch space:

CLUE 4 Exponents

Captain Clara measures signal power expanding from the radio tower. The strength multiplies at every level. Work out the exponent math for clue four.

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

P									P								
27	324	216	49	4	400	81	216	27	289	324	4	289	400	32	49	32	
289	81	361	243	324	128	9	216	169	81	4	361	9	324	49	169	32	
81	32	196	125	32	4												

$3^3 = \square \rightarrow \text{P}$	$7^2 = \square \rightarrow \text{N}$	$18^2 = \square \rightarrow \text{A}$	$2^7 = \square \rightarrow \text{B}$
$3^2 = \square \rightarrow \text{R}$	$9^2 = \square \rightarrow \text{H}$	$17^2 = \square \rightarrow \text{S}$	$19^2 = \square \rightarrow \text{O}$
$14^2 = \square \rightarrow \text{L}$	$5^3 = \square \rightarrow \text{M}$	$6^3 = \square \rightarrow \text{I}$	$13^2 = \square \rightarrow \text{G}$
$2^5 = \square \rightarrow \text{E}$	$20^2 = \square \rightarrow \text{C}$	$2^2 = \square \rightarrow \text{T}$	$3^5 = \square \rightarrow \text{W}$

Scratch space:

CLUE 5**Two-step equations - the last clue**

Scout Sam tracks missing supply crates along the muddy riverbank. Set up the missing value steps to unlock clue five.

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:

$4x + 8 = 52, x = \boxed{}$

$2x + 4 = 6, x = \boxed{}$

$6x + 3 = 39, x = \boxed{}$

$2x + 9 = 15, x = \boxed{}$

$5x + 7 = 27, x = \boxed{}$

$2x + 6 = 16, x = \boxed{}$

$5x + 12 = 57, x = \boxed{}$

$5x + 5 = 40, x = \boxed{}$

$5x + 1 = 41, x = \boxed{}$

$2x + 1 = 5, x = \boxed{}$

$5x + 8 = 68, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain zipped over the canopy using a zip line glider, then scouted the camp perimeter with a mini drone.
2. The villain navigated the dark caves with night goggles, then scouted the camp perimeter with a mini drone.
3. The villain swung across the ravine with a grappling hook, then scouted the camp perimeter with a mini drone.
4. The villain swung across the ravine with a grappling hook, then climbed the ancient ruins using a portable ladder.
5. The villain navigated the dark caves with night goggles, then climbed the ancient ruins using a portable ladder.
6. The villain checked the jungle trails with a pocket compass, then cut through thick jungle vines with a laser torch.
7. The villain vanished into the brush using a smoke bomb, then secured a quick escape with a rope launcher.
8. The villain checked the jungle trails with a pocket compass, then lit up the canopy using a signal flare.
9. The villain swung across the ravine with a grappling hook, then secured a quick escape with a rope launcher.
10. The villain zipped over the canopy using a zip line glider, then climbed the ancient ruins using a portable ladder.
11. The villain navigated the dark caves with night goggles, then cut through thick jungle vines with a laser torch.
12. The villain checked the jungle trails with a pocket compass, then scouted the camp perimeter with a mini drone.

Answer Key

The Mystery of Sunken Island

Culprit: Sailor Seth

Zip Line Glider · Portable Ladder · Left Glove · Bright Orange Helmet · Bright Flashlight

Trail: Start 21 → Clue 1 14 → Clue 2 8 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE VILLAIN DOES NOT USE A SIGNAL FLARE"

$(-13) + 31 = 18$ (T) · $(-13) + 28 = 15$ (V) · $4 - (-10) = 14$ (G) · $(-9) + 14 = 5$ (N) · $(-7) + 8 = 1$ (I) · $(-9) + 39 = 30$ (O) · $(-10) + 14 = 4$ (H) · $(-10) + 33 = 23$ (A) · $(-1) + 13 = 12$ (R) · $7 - (-2) = 9$ (E) · $25 - (-1) = 26$ (S) · $27 - (-1) = 28$ (D) · $7 - (-4) = 11$ (L) · $(-4) + 6 = 2$ (F) · $(-10) + 13 = 3$ (U)

Clue 2 (Percentages): "THE SUSPECT WORE A SINGLE GLOVE ON THE LEFT HAND"

50% of 114 = 57 (T) · 10% of 10 = 1 (O) · 50% of 92 = 46 (R) · 10% of 550 = 55 (I) · 25% of 232 = 58 (V) · 25% of 96 = 24 (U) · 25% of 100 = 25 (W) · 5% of 220 = 11 (C) · 25% of 156 = 39 (F) · 40% of 90 = 36 (L) · 75% of 68 = 51 (A) · 50% of 26 = 13 (H) · 5% of 200 = 10 (E) · 60% of 20 = 12 (P) · 40% of 130 = 52 (S) · 5% of 60 = 3 (D) · 20% of 90 = 18 (G) · 5% of 840 = 42 (N)

Clue 3 (Order of operations): "A BRIGHT FLASHLIGHT BLINDED THE ROGUE EXPLORER"

$55 + 6 \times 4 = 79$ (A) · $67 + 6 \times 8 = 115$ (N) · $12 \times 9 - 13 = 95$ (D) · $12 \times 11 - 13 = 119$ (G) · $8 \times 7 - 17 = 39$ (I) · $5 \times 12 - 6 = 54$ (S) · $2 + 7 \times 8 = 58$ (T) · $59 + 9 \times 3 = 86$ (U) · $12 \times 5 - 28 = 32$ (O) · $94 + 3 \times 8 = 118$ (L) · $9 \times 9 - 15 = 66$ (X) · $8 \times 8 - 16 = 48$ (E) · $8 \times 8 - 19 = 45$ (R) · $3 \times 9 - 6 = 21$ (H) · $7 \times 8 - 7 = 49$ (F) · $11 \times 7 - 1 = 76$ (B) · $9 \times 8 - 22 = 50$ (P)

Clue 4 (Exponents): "PAINT CHIPS AT SCENE SHOW A BRIGHT ORANGE HELMET"

$3^3 = 27$ (P) · $7^2 = 49$ (N) · $18^2 = 324$ (A) · $2^7 = 128$ (B) · $3^2 = 9$ (R) · $9^2 = 81$ (H) · $17^2 = 289$ (S) · $19^2 = 361$ (O) · $14^2 = 196$ (L) · $5^3 = 125$ (M) · $6^3 = 216$ (I) · $13^2 = 169$ (G) · $2^5 = 32$ (E) · $20^2 = 400$ (C) · $2^2 = 4$ (T) · $3^5 = 243$ (W)

Clue 5 (Two-step equations): surviving statement is box 10 → Sailor Seth

$4x + 8 = 52, x = 11$ · $2x + 4 = 6, x = 1$ · $6x + 3 = 39, x = 6$ · $2x + 9 = 15, x = 3$ · $5x + 7 = 27, x = 4$ · $2x + 6 = 16, x = 5$ · $5x + 12 = 57, x = 9$ · $5x + 5 = 40, x = 7$ · $5x + 1 = 41, x = 8$ · $2x + 1 = 5, x = 2$ · $5x + 8 = 68, x = 12$