



The Summit Station Sabotage

Grade 7 math · Integers, Word problems, Multi-step word problems, Percentages, Two-step equations · Reading level grades 7-9

Detective: _____ Date: _____

The storm of the century is rolling in, and someone has sabotaged the peak-top weather transmitter. Without it, the expedition party down in the valley will be lost in the blizzard. The team has tracked the culprit to a high-altitude base camp, but they are hiding among the crew. Use your logic, math skills, and the clues left behind to unmask the rogue climber before the storm hits.

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 the Rogue Climber is _____

Possible suspects

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

NAME	TRAVERSAL GEAR	SPECIALIZED GADGET	OBSERVED STANCE	GEAR ACCENT COLOR	TACTICAL COUNTERMEASURE
Polo	thermal glider	plasma torch	left-handed stance	neon orange beanie	sub-zero freeze spray
Cousteau	thermal glider	holo-decoy emitter	right-handed stance	cobalt blue visor	ultra-bright flare
Amelia	rocket-boosted boots	holo-decoy emitter	left-handed stance	cobalt blue visor	sub-zero freeze spray
Tasman	rocket-boosted boots	plasma torch	left-handed stance	neon orange beanie	ultra-bright flare
Kingsley	sonic ice pick	stealth cloak	left-handed stance	neon orange beanie	magnetic tripwire
Hudson	sonic ice pick	decryption glove	left-handed stance	neon orange beanie	ultra-bright flare
Fossett	laser grappling hook	miniature drone	right-handed stance	cobalt blue visor	sub-zero freeze spray
Clark	rocket-boosted boots	holo-decoy emitter	left-handed stance	neon orange beanie	sub-zero freeze spray
Croft	rocket-boosted boots	decryption glove	left-handed stance	frost white helmet	magnetic tripwire
Solo	laser grappling hook	stealth cloak	left-handed stance	neon orange beanie	sub-zero freeze spray
Lewis	rocket-boosted boots	decryption glove	left-handed stance	neon orange beanie	sub-zero freeze spray
Hillary	mag-boot snowshoes	plasma torch	left-handed stance	frost white helmet	magnetic tripwire
Bly	rocket-boosted boots	holo-decoy emitter	right-handed stance	neon orange beanie	sub-zero freeze spray
Shackleton	sonic ice pick	plasma torch	right-handed stance	cobalt blue visor	ultra-bright flare
Drake	mag-boot snowshoes	holo-decoy emitter	left-handed stance	neon orange beanie	ultra-bright flare
Earhart	sonic ice pick	holo-decoy emitter	right-handed stance	frost white helmet	magnetic tripwire
Fremont	laser grappling hook	holo-decoy emitter	left-handed stance	neon orange beanie	magnetic tripwire
Henson	thermal glider	miniature drone	left-handed stance	neon orange beanie	sub-zero freeze spray
Zheng	mag-boot snowshoes	miniature drone	right-handed stance	neon orange beanie	ultra-bright flare
Vespucci	laser grappling hook	stealth cloak	right-handed stance	neon orange beanie	magnetic tripwire
Magellan	thermal glider	plasma torch	right-handed stance	cobalt blue visor	ultra-bright flare

CLUE 1 Integers

To secure the perimeter, we must organize the heavy climbing gear. The supply room clerk needs to pack several crates with carabiners and harnesses, factoring in broken gear replacements and split shipments.

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

T																			
4	11	5	12	6	17	20	5	29	22	27	25	1	5	12	22	3	29	7	10

		T				T							
3	10	4	5	3	22	4	11	29	22	6	3	7	

$(-12) + 16 = \square \rightarrow \text{T}$	$3 - (-8) = \square \rightarrow \text{H}$	$6 - (-4) = \square \rightarrow \text{S}$
$(-1) + 2 = \square \rightarrow \text{B}$	$(-10) + 32 = \square \rightarrow \text{L}$	$(-7) + 14 = \square \rightarrow \text{K}$
$1 - (-4) = \square \rightarrow \text{E}$	$(-5) + 25 = \square \rightarrow \text{U}$	$(-1) + 28 = \square \rightarrow \text{I}$
$6 - (-11) = \square \rightarrow \text{G}$	$24 - (-1) = \square \rightarrow \text{M}$	$24 - (-5) = \square \rightarrow \text{C}$
$(-13) + 19 = \square \rightarrow \text{O}$	$(-10) + 13 = \square \rightarrow \text{A}$	$(-2) + 14 = \square \rightarrow \text{R}$

Scratch space:

CLUE 2

Word problems

The expedition team has mapped the distance to the next ridge. Solve the distance and speed calculations to figure out how much fuel remains in our snow-scooters.

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
S

C

13 71 65 98 87 53 78 71 98 53 78 71

The Quartermaster found 6 decoder badges yesterday and 7 more today. How many decoder badges in all? → L

There were 86 flare guns. 15 were used up. How many flare guns are left? → E

The Quartermaster found 79 decoder badges yesterday and 19 more today. How many decoder badges in all? → T

There were 106 climbing ropes. 28 were used up. How many climbing ropes are left? → N

There were 65 decoder badges. 12 were used up. How many decoder badges are left? → A

There were 125 grappling hooks. 38 were used up. How many grappling hooks are left? → H

The Quartermaster found 38 climbing ropes yesterday and 27 more today. How many climbing ropes in all? → F

Scratch space:

CLUE 3

Multi-step word problems

The temperature is dropping fast as we climb the north face. We need to track the changing elevation levels and sub-zero temperature drops to calibrate our thermal suits.

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

Someone scared the villain off with

S								F							S	P		A	Y	.
59	81	79	51	10	63	52		63	10	10	51	10		59		63				

There were 208 decoder badges in all. 31 decoder badges were set aside. The rest were shared equally among 3 the Recon Squad. How many decoder badges did each get? → **S**

The Quartermaster filled 2 boxes with 7 grappling hooks each, then found 49 more grappling hooks. How many grappling hooks are there in all? → **R**

There were 450 decoder badges in all. 34 decoder badges were set aside. The rest were shared equally among 8 the Recon Squad. How many decoder badges did each get? → **O**

There were 167 supply crates in all. 2 the Recon Squad used 7 supply crates each. The other 3 the Recon Squad shared the rest equally. How many supply crates did each of the other the Recon Squad get? → **Z**

The Quartermaster collected 104 grappling hooks in the morning and 212 grappling hooks in the afternoon, then split them equally among 4 the Recon Squad. How many grappling hooks did each get? → **B**

The Quartermaster earned 7 grappling hooks in each of 6 rounds, plus 53 bonus grappling hooks. Then 14 grappling hooks were lost. How many grappling hooks are left? → **U**

There were 88 flare guns in all. 2 the Recon Squad used 14 flare guns each. The other 6 the Recon Squad shared the rest equally. How many flare guns did each of the other the Recon Squad get? → **E**

Scratch space:

CLUE 4 Percentages

The emergency backup generator is running low on power. We must calculate the exact percentage of remaining battery charge to keep the thermal shields online.

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

W																	
4	2	24	33	25	54	40	16	54	2	33	54	33	20	16	54	10	2
24	52	5	2	20													

$10\% \text{ of } 40 = \square \rightarrow \text{W}$

$40\% \text{ of } 40 = \square \rightarrow \text{A}$

$50\% \text{ of } 10 = \square \rightarrow \text{B}$

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

$25\% \text{ of } 80 = \square \rightarrow \text{R}$

$10\% \text{ of } 20 = \square \rightarrow \text{E}$

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

$5\% \text{ of } 800 = \square \rightarrow \text{D}$

$60\% \text{ of } 55 = \square \rightarrow \text{O}$

$60\% \text{ of } 40 = \square \rightarrow \text{F}$

$50\% \text{ of } 50 = \square \rightarrow \text{U}$

$50\% \text{ of } 108 = \square \rightarrow \text{N}$

Scratch space:

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

To unlock the secure gear locker, we need to balance the pressure valves. Solve for the unknown variable to match the correct pressure level on both lines.

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:

$6x + 2 = 14, x = \boxed{}$

$5x + 8 = 13, x = \boxed{}$

$2x + 8 = 16, x = \boxed{}$

$4x + 8 = 32, x = \boxed{}$

$6x + 5 = 53, x = \boxed{}$

$2x + 4 = 10, x = \boxed{}$

$3x + 10 = 25, x = \boxed{}$

$2x + 8 = 30, x = \boxed{}$

$6x + 3 = 75, x = \boxed{}$

$3x + 3 = 30, x = \boxed{}$

$4x + 2 = 42, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain glides silently between the icy peaks, then cuts through the main power conduits.
2. The villain boosts over the deep mountain crevasses, then distracts the guards with a double image.
3. The villain scales the sheer frozen cliff faces, then cuts through the main power conduits.
4. The villain glides silently between the icy peaks, then scouts the path ahead with a camera feed.
5. The villain scales the sheer frozen cliff faces, then reprograms the automated security grid.
6. The villain strides easily across the slippery glaciers, then cuts through the main power conduits.
7. The villain boosts over the deep mountain crevasses, then reprograms the automated security grid.
8. The villain shatters the thick defensive ice barriers, then reprograms the automated security grid.
9. The villain scales the sheer frozen cliff faces, then scouts the path ahead with a camera feed.
10. The villain strides easily across the slippery glaciers, then reprograms the automated security grid.
11. The villain shatters the thick defensive ice barriers, then slips past the motion sensors undetected.
12. The villain shatters the thick defensive ice barriers, then cuts through the main power conduits.

Answer Key

The Summit Station Sabotage

Culprit: Lewis

rocket-boosted boots · decryption glove · left-handed stance · neon orange beanie · sub-zero freeze spray

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

Clue 1 (Integers): "THE ROGUE CLIMBER LACKS A STEALTH CLOAK"

$(-12) + 16 = 4$ (T) · $3 - (-8) = 11$ (H) · $6 - (-4) = 10$ (S) · $(-1) + 2 = 1$ (B) · $(-10) + 32 = 22$ (L) · $(-7) + 14 = 7$ (K) · $1 - (-4) = 5$ (E) · $(-5) + 25 = 20$ (U) · $(-1) + 28 = 27$ (I) · $6 - (-11) = 17$ (G) · $24 - (-1) = 25$ (M) · $24 - (-5) = 29$ (C) · $(-13) + 19 = 6$ (O) · $(-10) + 13 = 3$ (A) · $(-2) + 14 = 12$ (R)

Clue 2 (Word problems): "LEFT HANDED STANCE"

The Quartermaster found 6 decoder badges yesterday and 7 more today. How many decoder badges in all? = 13 (L) · There were 86 flare guns. 15 were used up. How many flare guns are left? = 71 (E) · The Quartermaster found 79 decoder badges yesterday and 19 more today. How many decoder badges in all? = 98 (T) · There were 106 climbing ropes. 28 were used up. How many climbing ropes are left? = 78 (N) · There were 65 decoder badges. 12 were used up. How many decoder badges are left? = 53 (A) · There were 125 grappling hooks. 38 were used up. How many grappling hooks are left? = 87 (H) · The Quartermaster found 38 climbing ropes yesterday and 27 more today. How many climbing ropes in all? = 65 (F)

Clue 3 (Multi-step word problems): "SUB ZERO FREEZE SPRAY"

There were 208 decoder badges in all. 31 decoder badges were set aside. The rest were shared equally among 3 the Recon Squad. How many decoder badges did each get? = 59 (S) · The Quartermaster filled 2 boxes with 7 grappling hooks each, then found 49 more grappling hooks. How many grappling hooks are there in all? = 63 (R) · There were 450 decoder badges in all. 34 decoder badges were set aside. The rest were shared equally among 8 the Recon Squad. How many decoder badges did each get? = 52 (O) · There were 167 supply crates in all. 2 the Recon Squad used 7 supply crates each. The other 3 the Recon Squad shared the rest equally. How many supply crates did each of the other the Recon Squad get? = 51 (Z) · The Quartermaster collected 104 grappling hooks in the morning and 212 grappling hooks in the afternoon, then split them equally among 4 the Recon Squad. How many grappling hooks did each get? = 79 (B) · The Quartermaster earned 7 grappling hooks in each of 6 rounds, plus 53 bonus grappling hooks. Then 14 grappling hooks were lost. How many grappling hooks are left? = 81 (U) · There were 88 flare guns in all. 2 the Recon Squad used 14 flare guns each. The other 6 the Recon Squad shared the rest equally. How many flare guns did each of the other the Recon Squad get? = 10 (E)

Clue 4 (Percentages): "WE FOUND A NEON ORANGE FIBER"

10% of 40 = 4 (W) · 40% of 40 = 16 (A) · 50% of 10 = 5 (B) · 5% of 200 = 10 (G) · 25% of 80 = 20 (R) · 10% of 20 = 2 (E) · 40% of 130 = 52 (I) · 5% of 800 = 40 (D) · 60% of 55 = 33 (O) · 60% of 40 = 24 (F) · 50% of 50 = 25 (U) · 50% of 108 = 54 (N)

Clue 5 (Two-step equations): surviving statement is box 7 → Lewis

$6x + 2 = 14$, $x = 2$ · $5x + 8 = 13$, $x = 1$ · $2x + 8 = 16$, $x = 4$ · $4x + 8 = 32$, $x = 6$ · $6x + 5 = 53$, $x = 8$ · $2x + 4 = 10$, $x = 3$ · $3x + 10 = 25$, $x = 5$ · $2x + 8 = 30$, $x = 11$ · $6x + 3 = 75$, $x = 12$ · $3x + 3 = 30$, $x = 9$ · $4x + 2 = 42$, $x = 10$