The Case of the Missing Golden Sun Stone

Grade 7 math · Integers, Word problems, Multi-step word problems, Percentages, Missing addends · Reading level grades 5-6

Detective: _____ **Date:** _____

During a midnight expedition into the ancient Sunken Canopy ruins, someone bypassed the stone vault traps and stole the Golden Sun Stone. The Head Archaeologist needs your team to analyze field logs, read the trail clues, and identify the culprit before they escape the jungle.

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 Temple Thief is _____

Possible suspects

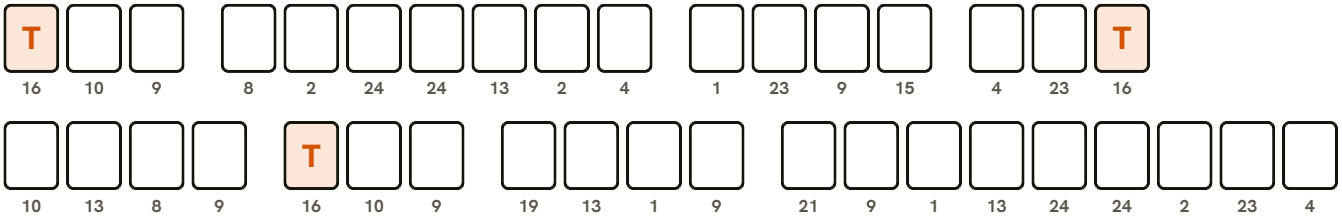
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	PRIMARY GEAR	STOLEN ARTIFACT	DOMINANT HAND	HAIRSTYLE	DEFENSE WEAKNESS
Hazel Thorne	Compass Mask	Opal Charm	Right Handed	Curly Afro	Bright Flash
Silas Knight	Rope Dart	Amber Ring	Right Handed	Spiky Buzzcut	Bright Flash
Julian Finch	Rope Dart	Amber Ring	Right Handed	Braided Ponytail	Loud Whistle
Elena Cruz	Smoke Bomb	Amber Ring	Left Handed	Spiky Buzzcut	Loud Whistle
Nora Drake	Torch Shield	Ruby Band	Right Handed	Braided Ponytail	Loud Whistle
Xavier Flint	Rope Dart	Jade Medallion	Left Handed	Curly Afro	Bright Flash
Ezra Vance	Torch Shield	Pearl Pendant	Right Handed	Spiky Buzzcut	Loud Whistle
Gemma Croft	Grappling Hook	Opal Charm	Left Handed	Braided Ponytail	Loud Whistle
Ivy Montgomery	Smoke Bomb	Pearl Pendant	Left Handed	Braided Ponytail	Cold Splash
Oscar Wilder	Grappling Hook	Pearl Pendant	Right Handed	Spiky Buzzcut	Loud Whistle
Clara Bishop	Rope Dart	Jade Medallion	Right Handed	Curly Afro	Loud Whistle
Jasper Stone	Grappling Hook	Pearl Pendant	Left Handed	Spiky Buzzcut	Bright Flash
Carter Hayes	Smoke Bomb	Ruby Band	Right Handed	Spiky Buzzcut	Loud Whistle
Leo Sterling	Torch Shield	Pearl Pendant	Left Handed	Braided Ponytail	Loud Whistle
Rowan Wells	Torch Shield	Pearl Pendant	Left Handed	Spiky Buzzcut	Bright Flash
Maya Rivers	Grappling Hook	Ruby Band	Left Handed	Braided Ponytail	Loud Whistle
Chloe Bennett	Smoke Bomb	Pearl Pendant	Right Handed	Spiky Buzzcut	Cold Splash
Ruby Rhodes	Torch Shield	Pearl Pendant	Right Handed	Braided Ponytail	Bright Flash
Zoe Mercer	Torch Shield	Ruby Band	Right Handed	Spiky Buzzcut	Loud Whistle
Gavin Frost	Smoke Bomb	Opal Charm	Left Handed	Braided Ponytail	Bright Flash
Felix Archer	Rope Dart	Jade Medallion	Right Handed	Spiky Buzzcut	Loud Whistle

CLUE 1 Integers

To decode the first vault clue, you must calculate supply distributions across the expedition trucks.

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



1 - (-15) = ☐ → T

12 - (-9) = ☐ → M

3 - (-1) = ☐ → N

3 - (-7) = ☐ → H

(-11) + 12 = ☐ → D

(-8) + 21 = ☐ → A

(-13) + 15 = ☐ → I

4 - (-4) = ☐ → V

18 - (-1) = ☐ → J

(-13) + 22 = ☐ → E

(-13) + 36 = ☐ → O

(-6) + 21 = ☐ → S

(-8) + 32 = ☐ → L

Scratch space:

CLUE 2 Word problems

Next, analyze the expedition team's travel times along the muddy jungle trails to trace the thief's escape path.

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

A witness saw the villain was

R								D	E	D
11	22	110	21	117	21	51	58			

.

Explorer found 2 climbing piton yesterday and 9 more today. How many climbing piton in all?

Answer: ☐ → R

There were 115 climbing piton. 5 were used up. How many climbing piton are left?

Answer: ☐ → G

Explorer lined up 7 rows of 3 canteen. How many canteen in all?

Answer: ☐ → H

There were 98 canteen. 40 were used up. How many canteen are left?

Answer: ☐ → N

There were 83 climbing piton. 32 were used up. How many climbing piton are left?

Answer: ☐ → A

There were 136 climbing piton. 19 were used up. How many climbing piton are left?

Answer: ☐ → T

Explorer lined up 11 rows of 2 expedition crate. How many expedition crate in all?

Answer: ☐ → I

Scratch space:

CLUE 3 Multi-step word problems

Deep in the underground cavern network, track the elevation changes from sea level to find hidden markers.

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

Someone scared the villain off with

L							S	T	L	E	.
12	74	16	50	61	18	31			12		

Explorer collected 14 expedition crate in the morning and 10 expedition crate in the afternoon, then split them equally among 2 Exploration Squad. How many expedition crate did each get?

Answer: ☐ → **L**

Explorer earned 6 canteen in each of 2 rounds, plus 30 bonus canteen. Then 11 canteen were lost. How many canteen are left?

Answer: ☐ → **I**

Explorer collected 117 climbing piton in the morning and 31 climbing piton in the afternoon, then split them equally among 2 Exploration Squad. How many climbing piton did each get?

Answer: ☐ → **O**

Explorer filled 3 boxes with 9 expedition crate each, then found 34 more expedition crate. How many expedition crate are there in all?

Answer: ☐ → **W**

Explorer filled 2 boxes with 3 map scroll each, then found 10 more map scroll. How many map scroll are there in all?

Answer: ☐ → **U**

Explorer collected 5 canteen in the morning and 31 canteen in the afternoon, then split them equally among 2 Exploration Squad. How many canteen did each get?

Answer: ☐ → **H**

There were 110 canteen in all. 2 Exploration Squad used 5 canteen each. The other 2 Exploration Squad shared the rest equally. How many canteen did each of the other Exploration Squad get?

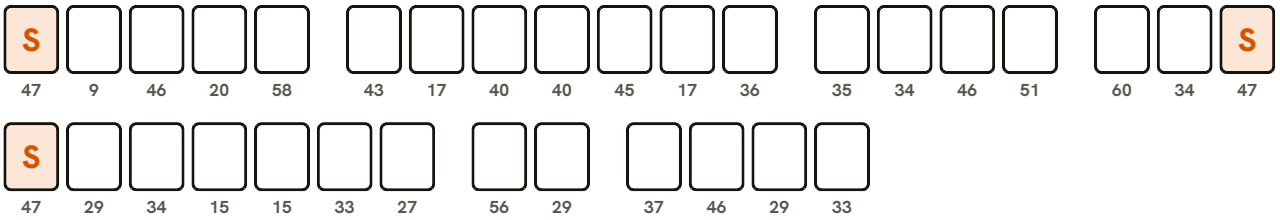
Answer: ☐ → **D**

Scratch space:

CLUE 4 Percentages

> The ancient wall carvings measure trap power levels in percentages; calculate the missing ratios to unlock the next clue.

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



20% of 235 = ☐ → S

20% of 85 = ☐ → U

20% of 300 = ☐ → W

20% of 75 = ☐ → G

10% of 360 = ☐ → T

20% of 200 = ☐ → Z

20% of 280 = ☐ → O

20% of 100 = ☐ → K

5% of 540 = ☐ → D

50% of 68 = ☐ → A

25% of 172 = ☐ → B

10% of 90 = ☐ → P

10% of 460 = ☐ → I

5% of 700 = ☐ → H

20% of 290 = ☐ → Y

25% of 132 = ☐ → E

25% of 204 = ☐ → R

5% of 580 = ☐ → N

10% of 370 = ☐ → V

10% of 450 = ☐ → C

Scratch space:

CLUE 5 Missing addends - the last clue

> Finally, balance the pressure plates on the vault floor by finding the missing weights needed to trigger the final secret compartment.

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:

19 + ___ = 23 ☐	33 + ___ = 38 ☐	14 + ___ = 16 ☐	10 + ___ = 13 ☐
16 + ___ = 26 ☐	13 + ___ = 22 ☐	40 + ___ = 51 ☐	6 + ___ = 12 ☐
12 + ___ = 24 ☐	37 + ___ = 45 ☐	19 + ___ = 20 ☐	

Step 2 - cross out the sentence with each answer:

1. The villain zipped up with a grappling hook, then grabbed the opal charm.
2. The villain guarded with a torch shield, then swiped the pearl pendant.
3. The villain scouted with a compass mask, then swiped the pearl pendant.
4. The villain zipped up with a grappling hook, then swiped the pearl pendant.
5. The villain vanished in a smoke bomb, then snatched the ruby band.
6. The villain swung on a rope dart, then grabbed the opal charm.
7. The villain guarded with a torch shield, then snatched the ruby band.
8. The villain swung on a rope dart, then snatched the ruby band.
9. The villain vanished in a smoke bomb, then pocked the amber ring.
10. The villain swung on a rope dart, then swiped the pearl pendant.
11. The villain swung on a rope dart, then stole the jade medallion.
12. The villain scouted with a compass mask, then grabbed the opal charm.

TEACHER / PARENT

Answer Key

The Case of the Missing Golden Sun Stone

Culprit: Zoe Mercer

Torch Shield · Ruby Band · Right Handed · Spiky Buzzcut · Loud Whistle

Trail: Start 21 → Clue 1 18 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE VILLAIN DOES NOT HAVE THE JADE MEDALLION"

1 - (-15) = 16 (T) · 12 - (-9) = 21 (M) · 3 - (-1) = 4 (N) · 3 - (-7) = 10 (H) · (-11) + 12 = 1 (D) · (-8) + 21 = 13 (A) · (-13) + 15 = 2 (I) · 4 - (-4) = 8 (V) · 18 - (-1) = 19 (J) · (-13) + 22 = 9 (E) · (-13) + 36 = 23 (O) · (-6) + 21 = 15 (S) · (-8) + 32 = 24 (L)

Clue 2 (Word problems): "RIGHT HANDED"

Explorer found 2 climbing piton yesterday and 9 more today. How many climbing piton in all? = 11 (R) · There were 115 climbing piton. 5 were used up. How many climbing piton are left? = 110 (G) · Explorer lined up 7 rows of 3 canteen. How many canteen in all? = 21 (H) · There were 98 canteen. 40 were used up. How many canteen are left? = 58 (N) · There were 83 climbing piton. 32 were used up. How many climbing piton are left? = 51 (A) · There were 136 climbing piton. 19 were used up. How many climbing piton are left? = 117 (T) · Explorer lined up 11 rows of 2 expedition crate. How many expedition crate in all? = 22 (I)

Clue 3 (Multi-step word problems): "LOUD WHISTLE"

Explorer collected 14 expedition crate in the morning and 10 expedition crate in the afternoon, then split them equally among 2 Exploration Squad. How many expedition crate did each get? = 12 (L) · Explorer earned 6 canteen in each of 2 rounds, plus 30 bonus canteen. Then 11 canteen were lost. How many canteen are left? = 31 (I) · Explorer collected 117 climbing piton in the morning and 31 climbing piton in the afternoon, then split them equally among 2 Exploration Squad. How many climbing piton did each get? = 74 (O) · Explorer filled 3 boxes with 9 expedition crate each, then found 34 more expedition crate. How many expedition crate are there in all? = 61 (W) · Explorer filled 2 boxes with 3 map scroll each, then found 10 more map scroll. How many map scroll are there in all? = 16 (U) · Explorer collected 5 canteen in the morning and 31 canteen in the afternoon, then split them equally among 2 Exploration Squad. How many canteen did each get? = 18 (H) · There were 110 canteen in all. 2 Exploration Squad used 5 canteen each. The other 2 Exploration Squad shared the rest equally. How many canteen did each of the other Exploration Squad get? = 50 (D)

Clue 4 (Percentages): "SPIKY BUZZCUT HAIR WAS SNAGGED ON VINE"

20% of 235 = 47 (S) · 20% of 85 = 17 (U) · 20% of 300 = 60 (W) · 20% of 75 = 15 (G) · 10% of 360 = 36 (T) · 20% of 200 = 40 (Z) · 20% of 280 = 56 (O) · 20% of 100 = 20 (K) · 5% of 540 = 27 (D) · 50% of 68 = 34 (A) · 25% of 172 = 43 (B) · 10% of 90 = 9 (P) · 10% of 460 = 46 (I) · 5% of 700 = 35 (H) · 20% of 290 = 58 (Y) · 25% of 132 = 33 (E) · 25% of 204 = 51 (R) · 5% of 580 = 29 (N) · 10% of 370 = 37 (V) · 10% of 450 = 45 (C)

Clue 5 (Missing addends): surviving statement is box 7 → Zoe Mercer

19 + ___ = 23 = 4 · 33 + ___ = 38 = 5 · 14 + ___ = 16 = 2 · 10 + ___ = 13 = 3 · 16 + ___ = 26 = 10 · 13 + ___ = 22 = 9 · 40 + ___ = 51 = 11 · 6 + ___ = 12 = 6 · 12 + ___ = 24 = 12 · 37 + ___ = 45 = 8 · 19 + ___ = 20 = 1