



Case of the Vanishing Sun Crystal

Grade 6 math · Multiplication, Percentages, Exponents, Order of operations, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

During a stormy night over Cloudpeak Temple, someone broke into the inner sanctuary and snatched the glowing Sun Crystal! The team needs your deduction skills to identify the culprit before their airship vanishes into the clouds.

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 Sky Bandit is _____

Possible suspects

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

NAME	GEAR	ARTIFACT	DOMINANT HAND	HAIRSTYLE	FLAW
Mason	Rope Dart	Compass of Winds	Left Handed	Braided Topknot	Squeaky Floorboards
Skyler	Flash Lantern	Compass of Winds	Right Handed	Slicked Ponytail	Bright Flashlights
Isabella	Rope Dart	Silver Whistle	Left Handed	Shaggy Curls	Loud Whistles
Rowan	Flash Lantern	Silver Whistle	Left Handed	Shaggy Curls	Loud Whistles
Captain Leo	Smoke Bombs	Storm Pendant	Left Handed	Shaggy Curls	Bright Flashlights
Oliver	Glider Wings	Compass of Winds	Left Handed	Braided Topknot	Loud Whistles
Mia	Glider Wings	Compass of Winds	Right Handed	Shaggy Curls	Bright Flashlights
Maya	Rope Dart	Cloud Ring	Left Handed	Braided Topknot	Bright Flashlights
Caleb	Rope Dart	Cloud Ring	Left Handed	Braided Topknot	Loud Whistles
Jonah	Glider Wings	Cloud Ring	Right Handed	Braided Topknot	Loud Whistles
Sophia	Rope Dart	Solar Map	Right Handed	Slicked Ponytail	Bright Flashlights
Amelia	Flash Lantern	Cloud Ring	Left Handed	Braided Topknot	Bright Flashlights
Finn	Flash Lantern	Solar Map	Left Handed	Shaggy Curls	Bright Flashlights
Harper	Rope Dart	Storm Pendant	Left Handed	Shaggy Curls	Bright Flashlights
Emma	Grappling Hook	Silver Whistle	Left Handed	Shaggy Curls	Bright Flashlights
Ava	Rope Dart	Solar Map	Left Handed	Shaggy Curls	Bright Flashlights
Eli	Grappling Hook	Compass of Winds	Right Handed	Braided Topknot	Loud Whistles
Zoe	Rope Dart	Solar Map	Left Handed	Shaggy Curls	Squeaky Floorboards
Ethan	Glider Wings	Cloud Ring	Left Handed	Slicked Ponytail	Bright Flashlights
Chloe	Grappling Hook	Storm Pendant	Left Handed	Shaggy Curls	Bright Flashlights
Nora	Rope Dart	Storm Pendant	Left Handed	Shaggy Curls	Loud Whistles

CLUE 1
Multiplication facts (1-12)

We found supply crates stacked in equal rows inside the bandit dock. Multiplying the rows gives us our first clue.

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

T																			
14	7	27	88	80	27	84	56	12	16	72	42	42	84	72	80	110	44	27	88
		T																	
80	44	14	7	84	16	27	84	88	44	42	84	11	70	84	1				

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

$1 \times 1 = \square \rightarrow \boxed{\text{P}}$

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

$9 \times 3 = \square \rightarrow \boxed{\text{E}}$

$1 \times 11 = \square \rightarrow \boxed{\text{R}}$

$8 \times 10 = \square \rightarrow \boxed{\text{N}}$

$4 \times 11 = \square \rightarrow \boxed{\text{O}}$

$8 \times 11 = \square \rightarrow \boxed{\text{S}}$

$11 \times 10 = \square \rightarrow \boxed{\text{D}}$

$8 \times 2 = \square \rightarrow \boxed{\text{V}}$

$6 \times 12 = \square \rightarrow \boxed{\text{I}}$

$12 \times 1 = \square \rightarrow \boxed{\text{Y}}$

$7 \times 8 = \square \rightarrow \boxed{\text{K}}$

$7 \times 6 = \square \rightarrow \boxed{\text{L}}$

$7 \times 12 = \square \rightarrow \boxed{\text{A}}$

$7 \times 1 = \square \rightarrow \boxed{\text{H}}$

Scratch space:

CLUE 2 Percentages

The airship navigation log lists fuel levels in percentages. Finding the correct percent reveals the second hint.

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

T							T								T	
45	19	28	43	22	26	39	45	43	9	29	9	11	28	25	45	
						T									T	
19	9	20	17	28	17	45	18	9	22	2	33	20	17	39	43	45

$5\% \text{ of } 900 = \square \rightarrow \text{ **T** }$

$25\% \text{ of } 132 = \square \rightarrow \text{ **I** }$

$40\% \text{ of } 65 = \square \rightarrow \text{ **O** }$

$5\% \text{ of } 180 = \square \rightarrow \text{ **A** }$

$5\% \text{ of } 220 = \square \rightarrow \text{ **L** }$

$25\% \text{ of } 112 = \square \rightarrow \text{ **E** }$

$5\% \text{ of } 360 = \square \rightarrow \text{ **R** }$

$25\% \text{ of } 8 = \square \rightarrow \text{ **K** }$

$25\% \text{ of } 68 = \square \rightarrow \text{ **D** }$

$10\% \text{ of } 390 = \square \rightarrow \text{ **U** }$

$5\% \text{ of } 860 = \square \rightarrow \text{ **S** }$

$25\% \text{ of } 76 = \square \rightarrow \text{ **H** }$

$50\% \text{ of } 44 = \square \rightarrow \text{ **C** }$

$5\% \text{ of } 500 = \square \rightarrow \text{ **F** }$

$25\% \text{ of } 116 = \square \rightarrow \text{ **W** }$

$10\% \text{ of } 200 = \square \rightarrow \text{ **N** }$

Scratch space:

CLUE 3

Exponents

The ancient lock mechanism uses power levels written with exponents. Calculating the value unlocks clue three.

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

B																
100	361	121	225	256	16	128	400	125	144	256	400	121	225	256	16	144

B																
100	400	121	8	324	32	324	16	256	32	361	196	8	125	169	125	25

$10^2 = \square \rightarrow \text{B}$

$2^7 = \square \rightarrow \text{F}$

$15^2 = \square \rightarrow \text{G}$

$19^2 = \square \rightarrow \text{R}$

$5^3 = \square \rightarrow \text{A}$

$12^2 = \square \rightarrow \text{S}$

$11^2 = \square \rightarrow \text{I}$

$14^2 = \square \rightarrow \text{U}$

$5^2 = \square \rightarrow \text{Y}$

$2^4 = \square \rightarrow \text{T}$

$16^2 = \square \rightarrow \text{H}$

$2^3 = \square \rightarrow \text{N}$

$18^2 = \square \rightarrow \text{D}$

$13^2 = \square \rightarrow \text{W}$

$20^2 = \square \rightarrow \text{L}$

$2^5 = \square \rightarrow \text{E}$

Scratch space:

CLUE 4
Order of operations

A secret vault door requires solving a multi step code in exact order. Work through the operations to get clue four.

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

S										S									
45	74	46	36	36	41	9	35	39	8	45	16	11	39	11	6	40	35	73	72
73	11	46	39	44	74	11	8	40	9	47									

$36 + 3 \times 3 = \square \rightarrow \text{S}$

$65 + 2 \times 4 = \square \rightarrow \text{N}$

$24 + 8 \times 6 = \square \rightarrow \text{D}$

$5 \times 10 - 11 = \square \rightarrow \text{R}$

$12 + 8 \times 3 = \square \rightarrow \text{G}$

$7 \times 11 - 30 = \square \rightarrow \text{K}$

$30 + 2 \times 5 = \square \rightarrow \text{O}$

$4 + 6 \times 2 = \square \rightarrow \text{W}$

$11 \times 2 - 13 = \square \rightarrow \text{C}$

$2 + 2 \times 2 = \square \rightarrow \text{F}$

$9 \times 7 - 17 = \square \rightarrow \text{A}$

$2 + 3 \times 2 = \square \rightarrow \text{L}$

$9 \times 7 - 22 = \square \rightarrow \text{Y}$

$4 \times 12 - 13 = \square \rightarrow \text{U}$

$39 + 7 \times 5 = \square \rightarrow \text{H}$

$7 \times 8 - 12 = \square \rightarrow \text{T}$

$3 \times 11 - 22 = \square \rightarrow \text{E}$

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

The runaway bandit divided stolen gold coins equally into bags. Splitting the total gives us the final clue.

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:

$132 \div 11 = \boxed{}$

$88 \div 8 = \boxed{}$

$21 \div 7 = \boxed{}$

$40 \div 4 = \boxed{}$

$2 \div 2 = \boxed{}$

$45 \div 5 = \boxed{}$

$4 \div 1 = \boxed{}$

$60 \div 10 = \boxed{}$

$72 \div 9 = \boxed{}$

$15 \div 3 = \boxed{}$

$7 \div 1 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain blinded the temple guards with a flash lantern, then signaled distant airships with a silver whistle.
2. The villain created a thick haze using smoke bombs, then summoned a sudden squall with the storm pendant.
3. The villain swung across the ancient chasm with a grappling hook, then signaled distant airships with a silver whistle.
4. The villain snagged the vault key using a rope dart, then signaled distant airships with a silver whistle.
5. The villain swung across the ancient chasm with a grappling hook, then floated across the trap door using a cloud ring.
6. The villain soared over the temple walls using glider wings, then summoned a sudden squall with the storm pendant.
7. The villain created a thick haze using smoke bombs, then decoded the secret ruins using the solar map.
8. The villain blinded the temple guards with a flash lantern, then summoned a sudden squall with the storm pendant.
9. The villain created a thick haze using smoke bombs, then steered through the clouds using the compass of winds.
10. The villain soared over the temple walls using glider wings, then signaled distant airships with a silver whistle.
11. The villain snagged the vault key using a rope dart, then summoned a sudden squall with the storm pendant.
12. The villain swung across the ancient chasm with a grappling hook, then summoned a sudden squall with the storm pendant.

Answer Key

Case of the Vanishing Sun Crystal

Culprit: Captain Leo

Smoke Bombs · Storm Pendant · Left Handed · Shaggy Curls · Bright Flashlights

Trail: Start 21 → Clue 1 17 → Clue 2 13 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE SNEAKY VILLAIN DOES NOT HAVE A SOLAR MAP"

$7 \times 2 = 14$ (T) · $1 \times 1 = 1$ (P) · $10 \times 7 = 70$ (M) · $9 \times 3 = 27$ (E) · $1 \times 11 = 11$ (R) · $8 \times 10 = 80$ (N) · $4 \times 11 = 44$ (O) · $8 \times 11 = 88$ (S) · $11 \times 10 = 110$ (D) · $8 \times 2 = 16$ (V) · $6 \times 12 = 72$ (I) · $12 \times 1 = 12$ (Y) · $7 \times 8 = 56$ (K) · $7 \times 6 = 42$ (L) · $7 \times 12 = 84$ (A) · $7 \times 1 = 7$ (H)

Clue 2 (Percentages): "THE SCOUT SAW A LEFT HANDED TRACK IN DUST"

5% of 900 = 45 (T) · 25% of 132 = 33 (I) · 40% of 65 = 26 (O) · 5% of 180 = 9 (A) · 5% of 220 = 11 (L) · 25% of 112 = 28 (E) · 5% of 360 = 18 (R) · 25% of 8 = 2 (K) · 25% of 68 = 17 (D) · 10% of 390 = 39 (U) · 5% of 860 = 43 (S) · 25% of 76 = 19 (H) · 50% of 44 = 22 (C) · 5% of 500 = 25 (F) · 25% of 116 = 29 (W) · 10% of 200 = 20 (N)

Clue 3 (Exponents): "BRIGHT FLASHLIGHTS BLINDED THE RUNAWAY"

$10^2 = 100$ (B) · $2^7 = 128$ (F) · $15^2 = 225$ (G) · $19^2 = 361$ (R) · $5^3 = 125$ (A) · $12^2 = 144$ (S) · $11^2 = 121$ (I) · $14^2 = 196$ (U) · $5^2 = 25$ (Y) · $2^4 = 16$ (T) · $16^2 = 256$ (H) · $2^3 = 8$ (N) · $18^2 = 324$ (D) · $13^2 = 169$ (W) · $20^2 = 400$ (L) · $2^5 = 32$ (E)

Clue 4 (Order of operations): "SHAGGY CURLS WERE FOUND NEAR THE LOCK"

$36 + 3 \times 3 = 45$ (S) · $65 + 2 \times 4 = 73$ (N) · $24 + 8 \times 6 = 72$ (D) · $5 \times 10 - 11 = 39$ (R) · $12 + 8 \times 3 = 36$ (G) · $7 \times 11 - 30 = 47$ (K) · $30 + 2 \times 5 = 40$ (O) · $4 + 6 \times 2 = 16$ (W) · $11 \times 2 - 13 = 9$ (C) · $2 + 2 \times 2 = 6$ (F) · $9 \times 7 - 17 = 46$ (A) · $2 + 3 \times 2 = 8$ (L) · $9 \times 7 - 22 = 41$ (Y) · $4 \times 12 - 13 = 35$ (U) · $39 + 7 \times 5 = 74$ (H) · $7 \times 8 - 12 = 44$ (T) · $3 \times 11 - 22 = 11$ (E)

Clue 5 (Division facts (1-12)): surviving statement is box 2 → Captain Leo

$132 \div 11 = 12$ · $88 \div 8 = 11$ · $21 \div 7 = 3$ · $40 \div 4 = 10$ · $2 \div 2 = 1$ · $45 \div 5 = 9$ · $4 \div 1 = 4$ · $60 \div 10 = 6$ · $72 \div 9 = 8$ · $15 \div 3 = 5$ · $7 \div 1 = 7$