



The Mystery of Nithusha's Emerald Bracelet

Grade 6 math · Rounding, Percentages, Exponents, Order of operations, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

During the grand gala, someone snatched Nithusha's sparkling emerald bracelet! Follow the clues around the palace grounds to identify the culprit and retrieve the missing treasure.

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 Thief is _____

Possible suspects

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

NAME	MAIN GADGET	ESCAPE VEHICLE	DOMINANT HAND	HAIRSTYLE	WEAKNESS
Vera	Laser Cutter	Zip Line	Left Handed	Curly Topknot	Bright Lights
Dara	Grappling Hook	Hoverboard	Left Handed	Braided Ponytail	Bright Lights
Faye	Grappling Hook	Electric Scooter	Left Handed	Curly Topknot	Sticky Net
Seth	Grappling Hook	Zip Line	Left Handed	Curly Topknot	Sticky Net
Nia	Lock Pick	Zip Line	Right Handed	Curly Topknot	Loud Whistles
Ivan	Grappling Hook	Electric Scooter	Right Handed	Curly Topknot	Loud Whistles
Kael	Lock Pick	Glider	Right Handed	Curly Topknot	Bright Lights
Aria	Lock Pick	Glider	Left Handed	Curly Topknot	Sticky Net
Otto	Stun Flash	Speedboat	Left Handed	Curly Topknot	Sticky Net
Zane	Laser Cutter	Speedboat	Left Handed	Curly Topknot	Bright Lights
Umar	Lock Pick	Electric Scooter	Left Handed	Braided Ponytail	Sticky Net
Milo	Laser Cutter	Electric Scooter	Right Handed	Curly Topknot	Sticky Net
Jara	Lock Pick	Speedboat	Left Handed	Slicked Back	Loud Whistles
Pia	Laser Cutter	Glider	Left Handed	Curly Topknot	Sticky Net
Bram	Laser Cutter	Hoverboard	Right Handed	Curly Topknot	Sticky Net
Hana	Smoke Bomb	Hoverboard	Left Handed	Braided Ponytail	Sticky Net
Gabe	Lock Pick	Speedboat	Left Handed	Slicked Back	Bright Lights
Lina	Smoke Bomb	Zip Line	Left Handed	Curly Topknot	Sticky Net
Tara	Lock Pick	Glider	Left Handed	Braided Ponytail	Sticky Net
Rhea	Stun Flash	Electric Scooter	Left Handed	Slicked Back	Sticky Net
Evan	Laser Cutter	Glider	Right Handed	Slicked Back	Bright Lights

CLUE 1

Rounding

The security display only shows estimated weights rounded to the nearest hundred.

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

T			T											T				
2000	500	200	2000	500	700	200	90	110	300	200	170	430	300	2000	2300	170	200	9000

50	4300	700	110	200	290

Round 2,487 to the nearest thousand

→ **T**

Round 169 to the nearest ten

→ **S**

Round 112 to the nearest ten

→ **D**

Round 51 to the nearest ten

→ **G**

Round 8,585 to the nearest thousand

→ **A**

Round 4,318 to the nearest hundred

→ **L**

Round 290 to the nearest ten

→ **R**

Round 172 to the nearest hundred

→ **E**

Round 93 to the nearest ten

→ **F**

Round 543 to the nearest hundred

→ **H**

Round 284 to the nearest hundred

→ **O**

Round 2,275 to the nearest hundred

→ **U**

Round 669 to the nearest hundred

→ **I**

Round 432 to the nearest ten

→ **N**

Scratch space:

CLUE 2

Percentages

The vault sensor logs the battery percentages left on the security gadgets.

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

T										T								
30	37	22	1	26	1	45	22	7	30	31	32	34	45	45	22	31	28	
									T					T				
12	35	34	16	22	39	34	32	30	37	22	35	22	39	30	37	28	10	31

$75\% \text{ of } 40 = \square \rightarrow \boxed{\text{T}}$

$10\% \text{ of } 310 = \square \rightarrow \boxed{\text{D}}$

$25\% \text{ of } 104 = \square \rightarrow \boxed{\text{U}}$

$5\% \text{ of } 140 = \square \rightarrow \boxed{\text{C}}$

$25\% \text{ of } 88 = \square \rightarrow \boxed{\text{E}}$

$10\% \text{ of } 160 = \square \rightarrow \boxed{\text{V}}$

$50\% \text{ of } 20 = \square \rightarrow \boxed{\text{N}}$

$75\% \text{ of } 52 = \square \rightarrow \boxed{\text{F}}$

$20\% \text{ of } 185 = \square \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 560 = \square \rightarrow \boxed{\text{A}}$

$50\% \text{ of } 90 = \square \rightarrow \boxed{\text{P}}$

$5\% \text{ of } 700 = \square \rightarrow \boxed{\text{L}}$

$5\% \text{ of } 240 = \square \rightarrow \boxed{\text{G}}$

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

$50\% \text{ of } 68 = \square \rightarrow \boxed{\text{O}}$

$50\% \text{ of } 64 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 3 Exponents

The security beam grid multiplies its power levels in exponent steps.

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

T										T								T		
243	400	289	64	25	361	9	324	169	243	9	361	32	32	289	324	243	400	289		
										T								T		
169	49	289	361	256	81	49	361	169	243	81	100	256	128	49	289	243				

$3^5 = \square \rightarrow$ T	$7^2 = \square \rightarrow$ N	$10^2 = \square \rightarrow$ C	$3^4 = \square \rightarrow$ I
$17^2 = \square \rightarrow$ E	$13^2 = \square \rightarrow$ S	$20^2 = \square \rightarrow$ H	$19^2 = \square \rightarrow$ A
$2^5 = \square \rightarrow$ P	$18^2 = \square \rightarrow$ D	$2^8 = \square \rightarrow$ K	$4^3 = \square \rightarrow$ G
$2^7 = \square \rightarrow$ Y	$3^2 = \square \rightarrow$ R	$5^2 = \square \rightarrow$ U	

Scratch space:

Order of operations

The coded keypad lock requires solving steps in a precise order.

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

The diagram illustrates the recursive splitting of an array. The top row shows the initial array [17, 52, 33, 52, 68, 33, 51, 11, 52, 54] being split into two halves: [17, 52, 33, 52, 68, 33, 51] and [11, 52, 54]. The bottom row shows the recursive splitting process, with boxes containing numbers like 62, 76, 51, 26, 7, 10, 33, 62, 52, 17, 51, 54, 40, 36, 76, 27. The box containing 'D' is highlighted in orange.

$12 \times 2 - 7 = \boxed{} \rightarrow \boxed{\mathbf{D}}$

$$4 + 2 \times 3 = \boxed{} \rightarrow \boxed{\mathbf{N}}$$

$10 \times 6 - 8 = \boxed{} \rightarrow \boxed{\text{E}}$

$$30 + 5 \times 2 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$21 + 3 \times 4 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$22 + 2 \times 2 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$12 \times 6 - 21 = \boxed{} \rightarrow \boxed{\text{I}}$$

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

$$17 + 7 \times 4 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$58 + 2 \times 2 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$10 \times 3 - 3 = \boxed{} \rightarrow \boxed{\text{Y}}$$

$10 \times 8 - 12 = \boxed{} \rightarrow \boxed{\text{C}}$

$$6 \times 11 - 12 = \boxed{} \rightarrow \boxed{\mathbf{S}}$$

$$6 \times 6 - 29 = \boxed{} \rightarrow \boxed{0}$$

$12 \times 8 - 20 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$$5 + 2 \times 3 = \boxed{} \rightarrow \boxed{\mathbf{v}}$$

$$6 \times 5 - 1 = \boxed{} \rightarrow \boxed{\text{U}}$$

Scratch space:

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

The guard splits the backup flashlight batteries equally among the patrol team.

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:

$44 \div 4 = \boxed{}$

$8 \div 8 = \boxed{}$

$84 \div 12 = \boxed{}$

$60 \div 6 = \boxed{}$

$99 \div 11 = \boxed{}$

$24 \div 8 = \boxed{}$

$144 \div 12 = \boxed{}$

$48 \div 8 = \boxed{}$

$18 \div 9 = \boxed{}$

$4 \div 1 = \boxed{}$

$88 \div 11 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fired a grappling hook to the balcony, then zipped down the cable line.
2. The villain flashed a bright stun light at the guard, then zipped down the cable line.
3. The villain used a laser cutter to slice the glass, then zoomed away on a hoverboard.
4. The villain used a laser cutter to slice the glass, then zipped down the cable line.
5. The villain dropped a smoke bomb on the dance floor, then zipped down the cable line.
6. The villain dropped a smoke bomb on the dance floor, then dashed through the park on an electric scooter.
7. The villain flashed a bright stun light at the guard, then sped down the river in a speedboat.
8. The villain flashed a bright stun light at the guard, then dashed through the park on an electric scooter.
9. The villain picked the lock on the vault door, then dashed through the park on an electric scooter.
10. The villain picked the lock on the vault door, then zipped down the cable line.
11. The villain fired a grappling hook to the balcony, then dashed through the park on an electric scooter.
12. The villain picked the lock on the vault door, then zoomed away on a hoverboard.

Answer Key

The Mystery of Nithusha's Emerald Bracelet

Culprit: Lina

Smoke Bomb · Zip Line · Left Handed · Curly Topknot · Sticky Net

Trail: Start 21 → Clue 1 16 → Clue 2 12 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE THIEF DOES NOT USE A GLIDER"

Round 2,487 to the nearest thousand = 2000 (T) · Round 169 to the nearest ten = 170 (S) · Round 112 to the nearest ten = 110 (D) · Round 51 to the nearest ten = 50 (G) · Round 8,585 to the nearest thousand = 9000 (A) · Round 4,318 to the nearest hundred = 4300 (L) · Round 290 to the nearest ten = 290 (R) · Round 172 to the nearest hundred = 200 (E) · Round 93 to the nearest ten = 90 (F) · Round 543 to the nearest hundred = 500 (H) · Round 284 to the nearest hundred = 300 (O) · Round 2,275 to the nearest hundred = 2300 (U) · Round 669 to the nearest hundred = 700 (I) · Round 432 to the nearest ten = 430 (N)

Clue 2 (Percentages): "THE SUSPECT DROPPED A GLOVE FOR THE LEFT HAND"

75% of 40 = 30 (T) · 10% of 310 = 31 (D) · 25% of 104 = 26 (U) · 5% of 140 = 7 (C) · 25% of 88 = 22 (E) · 10% of 160 = 16 (V) · 50% of 20 = 10 (N) · 75% of 52 = 39 (F) · 20% of 185 = 37 (H) · 5% of 560 = 28 (A) · 50% of 90 = 45 (P) · 5% of 700 = 35 (L) · 5% of 240 = 12 (G) · 10% of 10 = 1 (S) · 50% of 68 = 34 (O) · 50% of 64 = 32 (R)

Clue 3 (Exponents): "THE GUARDS TRAPPED THE SNEAK IN A STICKY NET"

$3^5 = 243$ (T) · $7^2 = 49$ (N) · $10^2 = 100$ (C) · $3^4 = 81$ (I) · $17^2 = 289$ (E) · $13^2 = 169$ (S) · $20^2 = 400$ (H) · $19^2 = 361$ (A) · $2^5 = 32$ (P) · $18^2 = 324$ (D) · $2^8 = 256$ (K) · $4^3 = 64$ (G) · $2^7 = 128$ (Y) · $3^2 = 9$ (R) · $5^2 = 25$ (U)

Clue 4 (Order of operations): "DETECTIVES FOUND CURLY HAIR ON THE DISPLAY"

$12 \times 2 - 7 = 17$ (D) · $4 + 2 \times 3 = 10$ (N) · $10 \times 6 - 8 = 52$ (E) · $30 + 5 \times 2 = 40$ (P) · $21 + 3 \times 4 = 33$ (T) · $22 + 2 \times 2 = 26$ (R) · $12 \times 6 - 21 = 51$ (I) · $7 \times 6 - 6 = 36$ (L) · $17 + 7 \times 4 = 45$ (F) · $58 + 2 \times 2 = 62$ (H) · $10 \times 3 - 3 = 27$ (Y) · $10 \times 8 - 12 = 68$ (C) · $6 \times 11 - 12 = 54$ (S) · $6 \times 6 - 29 = 7$ (O) · $12 \times 8 - 20 = 76$ (A) · $5 + 2 \times 3 = 11$ (V) · $6 \times 5 - 1 = 29$ (U)

Clue 5 (Division facts (1-12)): surviving statement is box 5 → Lina

$44 \div 4 = 11$ · $8 \div 8 = 1$ · $84 \div 12 = 7$ · $60 \div 6 = 10$ · $99 \div 11 = 9$ · $24 \div 8 = 3$ · $144 \div 12 = 12$ · $48 \div 8 = 6$ · $18 \div 9 = 2$ · $4 \div 1 = 4$ · $88 \div 11 = 8$