



The Midnight Memories Mystery

Grade 6 math · Addition, Multiplication, Percentages, Exponents, Division · Reading level grades 7-9

Detective: _____ **Date:** _____

Right before the sold-out stadium tour kick-off, someone tampered with the main sound console and swapped the lead vocalist's golden microphone! The crew found mysterious tour notes and rehearsal logs left behind. Analyze the clue data to discover who disrupted the show!

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 phantom performer is _____

Possible suspects

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

NAME	STAGE MOVE	SPECIAL EFFECT	MIC STANCE	HAIRSTYLE	STAGE MISHAP
Niall	Guitar Solo	Confetti Blast	Left Handed	Curly Locks	Blinding Flash
Maya	Guitar Solo	Confetti Blast	Left Handed	Sleek Quiff	Broken String
Ed	Stage Jump	Autograph Flash	Right Handed	Messy Fringe	Broken String
Paul	Drum Beat	Spotlight Beam	Right Handed	Sleek Quiff	Broken String
Lux	Drum Beat	Confetti Blast	Right Handed	Sleek Quiff	Broken String
Gemma	Mic Flip	Spotlight Beam	Right Handed	Curly Locks	Squeaking Mic
Perrie	Drum Beat	Sound Check	Left Handed	Sleek Quiff	Broken String
Louis	Stage Jump	Sound Check	Right Handed	Messy Fringe	Broken String
Harry	Mic Flip	Autograph Flash	Right Handed	Sleek Quiff	Broken String
Lou	Stage Jump	Confetti Blast	Left Handed	Sleek Quiff	Blinding Flash
Cheryl	Stage Jump	Sound Check	Left Handed	Messy Fringe	Blinding Flash
Taylor	Guitar Solo	Sound Check	Left Handed	Curly Locks	Squeaking Mic
Gigi	Drum Beat	Confetti Blast	Right Handed	Sleek Quiff	Blinding Flash
Liam	Stage Jump	Sound Check	Right Handed	Sleek Quiff	Blinding Flash
James	High Note	Bass Drop	Right Handed	Sleek Quiff	Squeaking Mic
Kendall	Guitar Solo	Bass Drop	Left Handed	Messy Fringe	Squeaking Mic
Simon	Guitar Solo	Bass Drop	Right Handed	Sleek Quiff	Broken String
Zayn	Guitar Solo	Spotlight Beam	Right Handed	Messy Fringe	Broken String
Charlie	Mic Flip	Sound Check	Right Handed	Messy Fringe	Broken String
Eleanor	Stage Jump	Confetti Blast	Left Handed	Messy Fringe	Broken String
Lottie	Stage Jump	Sound Check	Right Handed	Sleek Quiff	Broken String

CLUE 1 Addition

The security guard tallies all the VIP credentials gathered near the stage door to spot extra badges.

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

8537 4577 9148 5292 7018 5292 9349 9148 8658 8537 7950 2088 9148 5292 5426 2088 8537

7018 5292 9148 5292 9349 2088 8537 5533 8859 9312 4577 8537 5296 9148 4818 2045

$2840 + 5697 = \boxed{} \rightarrow \boxed{\text{T}}$

$$1537 + 3040 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$4402 + 4256 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$2720 + 2572 = \boxed{} \rightarrow \boxed{\text{S}}$$

$2831 + 2465 = \boxed{} \rightarrow \boxed{\mathbf{B}}$

$$1166 + 922 = \boxed{} \rightarrow \boxed{0}$$

$$1007 + 1038 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$5659 + 3653 = \boxed{} \rightarrow \boxed{\text{G}}$$

$$2893 + 2640 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$3244 + 3774 = \boxed{} \rightarrow \boxed{\text{U}}$$

$3838 + 4112 = \boxed{} \rightarrow \boxed{\text{D}}$

$3388 + 5471 = \boxed{} \rightarrow \boxed{}$

$$2508 + 2310 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$2919 + 2507 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$5881 + 3267 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$5033 + 4316 = \boxed{} \rightarrow \boxed{\text{P}}$$

Scratch space:

CLUE 2
Multiplication facts (1-12)

To figure out how many amplifier stacks line the main runway, the crew multiplies the row count by the speakers in each frame.

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

T									T								T
88	14	11	35	1	35	96	11	8	88	20	18	35	25	28	56	14	88
							T		T								
14	18	33	121	11	121	18	88	35	88	18	56	11					

$8 \times 11 = \square \rightarrow$ T	$11 \times 1 = \square \rightarrow$ E	$1 \times 8 = \square \rightarrow$ C	
$11 \times 3 = \square \rightarrow$ N	$7 \times 2 = \square \rightarrow$ H	$11 \times 11 = \square \rightarrow$ D	
$7 \times 8 = \square \rightarrow$ G	$7 \times 4 = \square \rightarrow$ I	$1 \times 1 = \square \rightarrow$ U	$5 \times 4 = \square \rightarrow$ W
$9 \times 2 = \square \rightarrow$ A	$5 \times 7 = \square \rightarrow$ S	$5 \times 5 = \square \rightarrow$ R	$12 \times 8 = \square \rightarrow$ P

Scratch space:

CLUE 3 Percentages

The soundboard display calculates the exact percentage of total audio power flowing into the stage monitors.

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

B																		
3	35	18	20	32	27	10	7	35	5	27	2	10	7	18	45	45	32	11

7	36	32	24	5	8	8	19	5	27

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

$20\% \text{ of } 160 = \square \rightarrow \text{E}$

$50\% \text{ of } 14 = \square \rightarrow \text{T}$

$50\% \text{ of } 16 = \square \rightarrow \text{L}$

$60\% \text{ of } 75 = \square \rightarrow \text{P}$

$10\% \text{ of } 360 = \square \rightarrow \text{H}$

$75\% \text{ of } 24 = \square \rightarrow \text{O}$

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

$50\% \text{ of } 22 = \square \rightarrow \text{D}$

$40\% \text{ of } 5 = \square \rightarrow \text{G}$

$5\% \text{ of } 380 = \square \rightarrow \text{A}$

$10\% \text{ of } 100 = \square \rightarrow \text{S}$

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

$20\% \text{ of } 100 = \square \rightarrow \text{K}$

$20\% \text{ of } 175 = \square \rightarrow \text{R}$

$25\% \text{ of } 108 = \square \rightarrow \text{N}$

Scratch space:

CLUE 4 Exponents

The lighting engineer checks exponential power boosts across the digital laser arrays to trace the circuit surge.

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

S											S						S
289	361	196	196	8	25	27	400	49	49	289	4	144	32	225	36	289	
361	196	49	4	128	225	343	400	81	144	128	16	64	128	225	196		

$17^2 = \square \rightarrow$ S	$2^4 = \square \rightarrow$ P	$2^7 = \square \rightarrow$ O	$7^2 = \square \rightarrow$ F
$2^3 = \square \rightarrow$ K	$19^2 = \square \rightarrow$ L	$12^2 = \square \rightarrow$ R	$20^2 = \square \rightarrow$ I
$3^3 = \square \rightarrow$ U	$15^2 = \square \rightarrow$ N	$14^2 = \square \rightarrow$ E	$6^2 = \square \rightarrow$ D
$8^2 = \square \rightarrow$ H	$3^4 = \square \rightarrow$ C	$2^5 = \square \rightarrow$ A	$5^2 = \square \rightarrow$ Q
$2^2 = \square \rightarrow$ T	$7^3 = \square \rightarrow$ M		

Scratch space:

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

The stage crew splits the remaining rehearsal minutes evenly among the backup dancers to balance the schedule.

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:

$63 \div 9 = \boxed{}$

$12 \div 12 = \boxed{}$

$121 \div 11 = \boxed{}$

$30 \div 5 = \boxed{}$

$4 \div 2 = \boxed{}$

$21 \div 7 = \boxed{}$

$30 \div 6 = \boxed{}$

$9 \div 1 = \boxed{}$

$132 \div 11 = \boxed{}$

$8 \div 1 = \boxed{}$

$60 \div 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain playing guitar solos, then dropping heavy bass.
2. The villain singing high notes, then dropping heavy bass.
3. The villain making stage jumps, then dropping heavy bass.
4. The villain making stage jumps, then running sound checks.
5. The villain doing mic flips, then shining spotlight beams.
6. The villain hitting drum beats, then flashing autographs.
7. The villain doing mic flips, then flashing autographs.
8. The villain doing mic flips, then triggering confetti blasts.
9. The villain making stage jumps, then triggering confetti blasts.
10. The villain doing mic flips, then dropping heavy bass.
11. The villain hitting drum beats, then triggering confetti blasts.
12. The villain hitting drum beats, then dropping heavy bass.

Answer Key

The Midnight Memories Mystery

Culprit: Lottie

Stage Jump · Sound Check · Right Handed · Sleek Quiff · Broken String

Trail: Start 21 → Clue 1 18 → Clue 2 10 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE SUSPECT DOES NOT USE SPOTLIGHT BEAM"

$2840 + 5697 = 8537$ (T) · $1537 + 3040 = 4577$ (H) · $4402 + 4256 = 8658$ (C) · $2720 + 2572 = 5292$ (S) · $2831 + 2465 = 5296$ (B) · $1166 + 922 = 2088$ (O) · $1007 + 1038 = 2045$ (M) · $5659 + 3653 = 9312$ (G) · $2893 + 2640 = 5533$ (L) · $3244 + 3774 = 7018$ (U) · $3838 + 4112 = 7950$ (D) · $3388 + 5471 = 8859$ (I) · $2508 + 2310 = 4818$ (A) · $2919 + 2507 = 5426$ (N) · $5881 + 3267 = 9148$ (E) · $5033 + 4316 = 9349$ (P)

Clue 2 (Multiplication facts (1-12)): "THE SUSPECT WAS RIGHT HANDED AT STAGE"

$8 \times 11 = 88$ (T) · $11 \times 1 = 11$ (E) · $1 \times 8 = 8$ (C) · $11 \times 3 = 33$ (N) · $7 \times 2 = 14$ (H) · $11 \times 11 = 121$ (D) · $7 \times 8 = 56$ (G) · $7 \times 4 = 28$ (I) · $1 \times 1 = 1$ (U) · $5 \times 4 = 20$ (W) · $9 \times 2 = 18$ (A) · $5 \times 7 = 35$ (S) · $5 \times 5 = 25$ (R) · $12 \times 8 = 96$ (P)

Clue 3 (Percentages): "BROKEN STRING STOPPED THE VILLAIN"

60% of 5 = 3 (B) · 20% of 160 = 32 (E) · 50% of 14 = 7 (T) · 50% of 16 = 8 (L) · 60% of 75 = 45 (P) · 10% of 360 = 36 (H) · 75% of 24 = 18 (O) · 10% of 50 = 5 (I) · 50% of 22 = 11 (D) · 40% of 5 = 2 (G) · 5% of 380 = 19 (A) · 10% of 100 = 10 (S) · 40% of 60 = 24 (V) · 20% of 100 = 20 (K) · 20% of 175 = 35 (R) · 25% of 108 = 27 (N)

Clue 4 (Exponents): "SLEEK QUIFF STRANDS LEFT ON MICROPHONE"

$17^{\wedge}2 = 289$ (S) · $2^{\wedge}4 = 16$ (P) · $2^{\wedge}7 = 128$ (O) · $7^{\wedge}2 = 49$ (F) · $2^{\wedge}3 = 8$ (K) · $19^{\wedge}2 = 361$ (L) · $12^{\wedge}2 = 144$ (R) · $20^{\wedge}2 = 400$ (I) · $3^{\wedge}3 = 27$ (U) · $15^{\wedge}2 = 225$ (N) · $14^{\wedge}2 = 196$ (E) · $6^{\wedge}2 = 36$ (D) · $8^{\wedge}2 = 64$ (H) · $3^{\wedge}4 = 81$ (C) · $2^{\wedge}5 = 32$ (A) · $5^{\wedge}2 = 25$ (Q) · $2^{\wedge}2 = 4$ (T) · $7^{\wedge}3 = 343$ (M)

Clue 5 (Division facts (1-12)): surviving statement is box 4 → Lottie

$63 \div 9 = 7$ · $12 \div 12 = 1$ · $121 \div 11 = 11$ · $30 \div 5 = 6$ · $4 \div 2 = 2$ · $21 \div 7 = 3$ · $30 \div 6 = 5$ · $9 \div 1 = 9$ · $132 \div 11 = 12$ · $8 \div 1 = 8$ · $60 \div 6 = 10$