



The Backstage Beatdown

Grade 10 math · Addition, Subtraction, Multiplication, Word problems, Division · Reading level grades 7-9

Detective: _____ Date: _____

The golden trophy microphones have vanished right before the festival headliners took the stage! The Stage Manager is in a panic. Only a true detective can trace the decibel levels and unmask the culprit.

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 Sound Saboteur is _____

Possible suspects

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

NAME	SIGNATURE INSTRUMENT	STAGE EFFECT	STRUMMING HAND	WIG COLOR	ACOUSTIC DISRUPTION
Cobain	synthesizer	pyrotechnics	left handed	electric blue	broken string
Hendrix	laser drums	laser lightshow	left handed	electric blue	feedback squeal
Dolly	laser drums	holograms	left handed	electric blue	feedback squeal
Prince	synthesizer	laser lightshow	left handed	electric blue	out of tune note
Ariana	electric guitar	holograms	right handed	mohawk purple	broken string
Adele	laser drums	holograms	left handed	electric blue	broken string
Yo Yo Ma	laser drums	confetti cannon	right handed	mohawk purple	broken string
Elton	electric guitar	confetti cannon	left handed	mohawk purple	broken string
Sheeran	synthesizer	confetti cannon	left handed	electric blue	broken string
Lennon	electric guitar	holograms	right handed	neon pink	out of tune note
Wolfgang	laser drums	laser lightshow	right handed	electric blue	feedback squeal
Taylor	electric guitar	confetti cannon	left handed	electric blue	feedback squeal
Elvis	electric guitar	smoke machine	left handed	neon pink	feedback squeal
Jagger	electric guitar	pyrotechnics	left handed	electric blue	feedback squeal
Zeppelin	keytar	pyrotechnics	left handed	electric blue	feedback squeal
Santana	neon bass	confetti cannon	left handed	mohawk purple	out of tune note
McCartney	neon bass	laser lightshow	left handed	electric blue	feedback squeal
Beethoven	neon bass	holograms	right handed	electric blue	feedback squeal
Freddie	synthesizer	holograms	left handed	mohawk purple	feedback squeal
Billie	neon bass	smoke machine	left handed	mohawk purple	out of tune note
Bruno	keytar	confetti cannon	right handed	electric blue	out of tune note

CLUE 1 Addition

To trace the saboteur's path, we count the gear cases left open in the main lobby and the VIP lounge. Add the total number of cases together to reveal the first vital clue.

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

T						T										T	
3145	4352	9827	6427	8296	9187	6645	3145	9827	6172	9823	5944	6645	9827	6427	2103	6645	3145
												T					
6172	6427	9827	3111	8296	6427	9827	9823	3111	8116	7897	4352	3145	6427	4352	6645	4654	

$1893 + 1252 = \square \rightarrow$ T	$3053 + 4844 = \square \rightarrow$ G	$4819 + 5008 = \square \rightarrow$ E
$5024 + 4799 = \square \rightarrow$ R	$2743 + 1911 = \square \rightarrow$ W	$5338 + 2778 = \square \rightarrow$ I
$2318 + 3626 = \square \rightarrow$ D	$3979 + 4317 = \square \rightarrow$ A	$3122 + 3050 = \square \rightarrow$ U
$1821 + 2531 = \square \rightarrow$ H	$796 + 1307 = \square \rightarrow$ N	$5000 + 4187 = \square \rightarrow$ B
$3811 + 2616 = \square \rightarrow$ S	$3536 + 3109 = \square \rightarrow$ O	$1506 + 1605 = \square \rightarrow$ L

Scratch space:

CLUE 2 Subtraction

The audio monitors recorded a sudden drop in the stage's decibel levels. Subtract the quietest level from the loudest level to pinpoint the saboteur's location.

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

T 4416	4731	5245	4429	6497	4429	6421	5245	4037	T 4416	4429	T 4416	5859	6497	8691	4429	2482	1762	T 4416	4731
T 4416	4731	5245	7882	5245	2127	T 4416	4731	8718	6095	8405									

$9154 - 4738 = \square \rightarrow \boxed{\text{T}}$	$10324 - 2442 = \square \rightarrow \boxed{\text{L}}$	$6048 - 3921 = \square \rightarrow \boxed{\text{F}}$
$11288 - 4867 = \square \rightarrow \boxed{\text{P}}$	$10706 - 1988 = \square \rightarrow \boxed{\text{A}}$	$8420 - 3991 = \square \rightarrow \boxed{\text{S}}$
$10236 - 3739 = \square \rightarrow \boxed{\text{U}}$	$9542 - 3683 = \square \rightarrow \boxed{\text{R}}$	$6893 - 2162 = \square \rightarrow \boxed{\text{H}}$
$5063 - 3301 = \square \rightarrow \boxed{\text{I}}$	$8209 - 4172 = \square \rightarrow \boxed{\text{C}}$	$9995 - 1590 = \square \rightarrow \boxed{\text{D}}$
$12276 - 3585 = \square \rightarrow \boxed{\text{M}}$	$9103 - 3008 = \square \rightarrow \boxed{\text{N}}$	$3883 - 1401 = \square \rightarrow \boxed{\text{W}}$
$6076 - 831 = \square \rightarrow \boxed{\text{E}}$		

Scratch space:

CLUE 3
Multiplication facts (1-12)

A backstage rack of rare vinyl records was knocked over. Multiply the number of damaged shelves by the number of records on each shelf to unlock the next piece of evidence.

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

F																		
70	66	66	8	55	121	88	5	49	108	80	66	121	72	49	63	9	120	49

63	40	18	49	60	9	25	80	66

$7 \times 10 = \square \rightarrow \text{F}$	$2 \times 4 = \square \rightarrow \text{D}$	$4 \times 10 = \square \rightarrow \text{H}$
$2 \times 9 = \square \rightarrow \text{I}$	$9 \times 12 = \square \rightarrow \text{Q}$	$8 \times 11 = \square \rightarrow \text{C}$
$10 \times 12 = \square \rightarrow \text{P}$	$5 \times 5 = \square \rightarrow \text{G}$	$11 \times 5 = \square \rightarrow \text{B}$
$11 \times 11 = \square \rightarrow \text{A}$	$1 \times 5 = \square \rightarrow \text{K}$	$7 \times 9 = \square \rightarrow \text{T}$
$10 \times 8 = \square \rightarrow \text{U}$	$8 \times 9 = \square \rightarrow \text{L}$	$11 \times 6 = \square \rightarrow \text{E}$
$7 \times 7 = \square \rightarrow \text{S}$	$3 \times 3 = \square \rightarrow \text{O}$	$10 \times 6 = \square \rightarrow \text{R}$

Scratch space:

CLUE 4 Word problems

The arena staff are analyzing ticket barcodes from the night of the heist to see who went backstage. Solve this word problem about venue seating to get closer to the culprit.

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

A strand of E E hair turned up at the scene.

16 69 16 60 48 11 29 60 105 69 U E 16

Sound Engineer found 10 drumsticks yesterday and 6 more today. How many drumsticks in all?

Answer: → **E**

There were 58 amplifier cables. 29 were used up. How many amplifier cables are left?

Answer: → ☒

Sound Engineer found 32 amplifier cables yesterday and 16 more today. How many amplifier cables in all?

Answer: → **T**

Sound Engineer found 2 drumsticks yesterday and 9 more today. How many drumsticks in all?

Answer: → **R**

Sound Engineer lined up 5 rows of 12 drumsticks. How many drumsticks in all?

Answer: → **C**

There were 129 guitar picks. 24 were used up. How many guitar picks are left?

Answer: → **B**

Sound Engineer found 17 guitar picks yesterday and 52 more today. How many guitar picks in all?

Answer: → **L**

Scratch space:

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

The security team is dividing up stacks of VIP backstage passes to hand out to guards. Divide the total number of passes equally among the gates to reveal 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:

$70 \div 7 = \boxed{}$

$11 \div 11 = \boxed{}$

$24 \div 6 = \boxed{}$

$6 \div 1 = \boxed{}$

$3 \div 1 = \boxed{}$

$56 \div 8 = \boxed{}$

$9 \div 1 = \boxed{}$

$11 \div 1 = \boxed{}$

$24 \div 2 = \boxed{}$

$12 \div 6 = \boxed{}$

$55 \div 11 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain solos on a double neck guitar, then fires off the pyrotechnics.
2. The villain blasts a heavy bass drop, then activates the laser lightshow.
3. The villain pounds a techno drum pattern, then blasts the confetti cannon.
4. The villain pounds a techno drum pattern, then summons a giant hologram.
5. The villain solos on a double neck guitar, then summons a giant hologram.
6. The villain swirls a synth melody, then blasts the confetti cannon.
7. The villain swirls a synth melody, then summons a giant hologram.
8. The villain shreds on a keytar, then fires off the pyrotechnics.
9. The villain shreds on a keytar, then summons a giant hologram.
10. The villain solos on a double neck guitar, then blasts the confetti cannon.
11. The villain shreds on a keytar, then activates the laser lightshow.
12. The villain pounds a techno drum pattern, then activates the laser lightshow.

Answer Key

The Backstage Beatdown

Culprit: Zeppelin

keytar · pyrotechnics · left handed · electric blue · feedback squeal

Trail: Start 21 → Clue 1 17 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE SABOTEUR DOES NOT USE LASER LIGHTSHOW"

$1893 + 1252 = 3145$ (T) · $3053 + 4844 = 7897$ (G) · $4819 + 5008 = 9827$ (E) · $5024 + 4799 = 9823$ (R) · $2743 + 1911 = 4654$ (W) · $5338 + 2778 = 8116$ (I) · $2318 + 3626 = 5944$ (D) · $3979 + 4317 = 8296$ (A) · $3122 + 3050 = 6172$ (U) · $1821 + 2531 = 4352$ (H) · $796 + 1307 = 2103$ (N) · $5000 + 4187 = 9187$ (B) · $3811 + 2616 = 6427$ (S) · $3536 + 3109 = 6645$ (O) · $1506 + 1605 = 3111$ (L)

Clue 2 (Subtraction): "THE SUSPECT STRUMS WITH THE LEFT HAND"

$9154 - 4738 = 4416$ (T) · $10324 - 2442 = 7882$ (L) · $6048 - 3921 = 2127$ (F) · $11288 - 4867 = 6421$ (P) · $10706 - 1988 = 8718$ (A) · $8420 - 3991 = 4429$ (S) · $10236 - 3739 = 6497$ (U) · $9542 - 3683 = 5859$ (R) · $6893 - 2162 = 4731$ (H) · $5063 - 3301 = 1762$ (I) · $8209 - 4172 = 4037$ (C) · $9995 - 1590 = 8405$ (D) · $12276 - 3585 = 8691$ (M) · $9103 - 3008 = 6095$ (N) · $3883 - 1401 = 2482$ (W) · $6076 - 831 = 5245$ (E)

Clue 3 (Multiplication facts (1-12)): "FEEDBACK SQUEAL STOPS THIS ROGUE"

$7 \times 10 = 70$ (F) · $2 \times 4 = 8$ (D) · $4 \times 10 = 40$ (H) · $2 \times 9 = 18$ (I) · $9 \times 12 = 108$ (Q) · $8 \times 11 = 88$ (C) · $10 \times 12 = 120$ (P) · $5 \times 5 = 25$ (G) · $11 \times 5 = 55$ (B) · $11 \times 11 = 121$ (A) · $1 \times 5 = 5$ (K) · $7 \times 9 = 63$ (T) · $10 \times 8 = 80$ (U) · $8 \times 9 = 72$ (L) · $11 \times 6 = 66$ (E) · $7 \times 7 = 49$ (S) · $3 \times 3 = 9$ (O) · $10 \times 6 = 60$ (R)

Clue 4 (Word problems): "ELECTRIC BLUE"

Sound Engineer found 10 drumsticks yesterday and 6 more today. How many drumsticks in all? = 16 (E) · There were 58 amplifier cables. 29 were used up. How many amplifier cables are left? = 29 (I) · Sound Engineer found 32 amplifier cables yesterday and 16 more today. How many amplifier cables in all? = 48 (T) · Sound Engineer found 2 drumsticks yesterday and 9 more today. How many drumsticks in all? = 11 (R) · Sound Engineer lined up 5 rows of 12 drumsticks. How many drumsticks in all? = 60 (C) · There were 129 guitar picks. 24 were used up. How many guitar picks are left? = 105 (B) · Sound Engineer found 17 guitar picks yesterday and 52 more today. How many guitar picks in all? = 69 (L)

Clue 5 (Division facts (1-12)): surviving statement is box 8 → Zeppelin

$70 \div 7 = 10$ · $11 \div 11 = 1$ · $24 \div 6 = 4$ · $6 \div 1 = 6$ · $3 \div 1 = 3$ · $56 \div 8 = 7$ · $9 \div 1 = 9$ · $11 \div 1 = 11$ · $24 \div 2 = 12$ · $12 \div 6 = 2$ · $55 \div 11 = 5$