The Case of the Missing Halloween Microphone

Grade 4 math · Place value, Addition, Fractions of a number, Subtraction, Missing addends · Reading level grades 3-4

Detective: _____ **Date:** _____

Minutes before the Halloween Bash concert, DJ Pumpkinhead went to grab the glowing skull microphone, but the stand was empty! Solve the math clues to find out who snatched the mic and saved 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 Mic Snatcher is _____

Possible suspects

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

NAME	STAGE TRICK	SOUND EFFECT	MIC GRIP	WIG COLOR	DISTRACTION
Clef Chloe	Bat Swarm	Wolf Howl	Left Handed	Midnight Black Wig	Bright Flashlights
Melody Pumpkin	Confetti Pop	Wolf Howl	Left Handed	Neon Orange Wig	Garlic Snacks
Chord Charlie	Laser Lights	Monster Growl	Left Handed	Midnight Black Wig	Garlic Snacks
Synth Seth	Laser Lights	Creepy Giggle	Left Handed	Midnight Black Wig	Garlic Snacks
Octave Olivia	Confetti Pop	Witch Cackle	Left Handed	Midnight Black Wig	Garlic Snacks
Harmony Haunt	Laser Lights	Wolf Howl	Left Handed	Neon Orange Wig	Loud Whistles
Ghostly Gabe	Laser Lights	Witch Cackle	Left Handed	Slime Green Wig	Loud Whistles
Vampy Veda	Confetti Pop	Owl Hoot	Left Handed	Midnight Black Wig	Bright Flashlights
Pitch Pete	Fog Blast	Monster Growl	Left Handed	Neon Orange Wig	Loud Whistles
Riff Ricky	Bat Swarm	Owl Hoot	Left Handed	Slime Green Wig	Loud Whistles
Treble Tim	Ghost Echo	Wolf Howl	Right Handed	Slime Green Wig	Garlic Snacks
Solo Sarah	Ghost Echo	Witch Cackle	Left Handed	Midnight Black Wig	Bright Flashlights
Piper Spell	Confetti Pop	Creepy Giggle	Right Handed	Slime Green Wig	Loud Whistles
Track Maya	Ghost Echo	Wolf Howl	Left Handed	Neon Orange Wig	Loud Whistles
Rhythm Ruby	Bat Swarm	Witch Cackle	Right Handed	Midnight Black Wig	Loud Whistles
Frankie Beat	Fog Blast	Owl Hoot	Left Handed	Slime Green Wig	Bright Flashlights
DJ Jack	Bat Swarm	Owl Hoot	Left Handed	Slime Green Wig	Bright Flashlights
Echo Ava	Confetti Pop	Witch Cackle	Left Handed	Slime Green Wig	Bright Flashlights
Tempo Tom	Ghost Echo	Witch Cackle	Left Handed	Slime Green Wig	Bright Flashlights
Mummy Max	Ghost Echo	Monster Growl	Left Handed	Slime Green Wig	Bright Flashlights
Siren Sam	Ghost Echo	Witch Cackle	Right Handed	Slime Green Wig	Bright Flashlights

CLUE 1 Place value

To decode the soundboard readout, check the digit in the tens place on the audio panel.

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

T																							T	
2000	40	900	800	10	400	400	30	10	70	200	7000	900	700	70	7000	2000								
						T																		
20	700	900	500	7000	70	700	2000	900	80	1000	80	7000	4000	400										

What is the value of the 2 in 2,364? ☐ → T

What is the value of the 2 in 427? ☐ → U

What is the value of the 4 in 452? ☐ → L

What is the value of the 4 in 4,025? ☐ → W

What is the value of the 7 in 6,470? ☐ → N

What is the value of the 2 in 5,283? ☐ → D

What is the value of the 8 in 6,899? ☐ → V

What is the value of the 7 in 722? ☐ → S

What is the value of the 3 in 137? ☐ → A

What is the value of the 7 in 7,064? ☐ → O

What is the value of the 8 in 7,280? ☐ → R

What is the value of the 1 in 816? ☐ → I

What is the value of the 1 in 31,803? ☐ → G

What is the value of the 9 in 8,965? ☐ → E

What is the value of the 4 in 2,948? ☐ → H

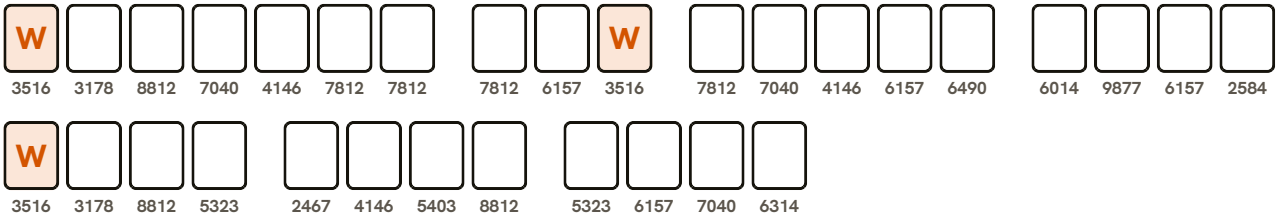
What is the value of the 5 in 521? ☐ → M

Scratch space:

CLUE 2 Addition

Add up all the audio cables gathered from the green room to unlock the stage door.

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



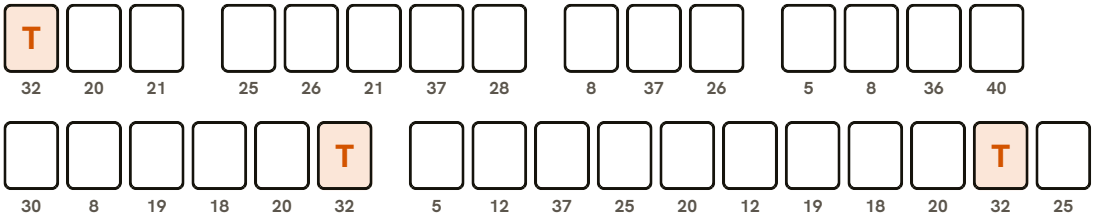
1282 + 2234 = ☐ → W	4761 + 3051 = ☐ → S	5741 + 4136 = ☐ → R
1815 + 2331 = ☐ → E	1516 + 1068 = ☐ → B	5055 + 3757 = ☐ → T
3624 + 2866 = ☐ → K	4450 + 2590 = ☐ → N	1602 + 3721 = ☐ → H
3400 + 2003 = ☐ → F	1242 + 1225 = ☐ → L	1532 + 1646 = ☐ → I
3968 + 2046 = ☐ → G	2950 + 3207 = ☐ → A	2052 + 4262 = ☐ → D

Scratch space:

CLUE 3 Fractions of a number

Find the fraction of illuminated stage lights that are flashing purple to track the thief.

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



2/10 of 160 = ☐ → T	2/4 of 16 = ☐ → R	2/6 of 111 = ☐ → A
1/4 of 112 = ☐ → K	2/8 of 144 = ☐ → O	3/5 of 35 = ☐ → E
1/8 of 40 = ☐ → F	1/2 of 60 = ☐ → B	1/5 of 200 = ☐ → M
1/2 of 52 = ☐ → N	1/5 of 125 = ☐ → S	2/8 of 80 = ☐ → H
5/10 of 36 = ☐ → G	1/4 of 76 = ☐ → I	2/3 of 18 = ☐ → L

Scratch space:

CLUE 4 Subtraction

Subtract the broken glow sticks from the total batch to see how many were used.

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



7058 - 646 = ☐ → G

9485 - 2081 = ☐ → I

5815 - 4741 = ☐ → C

2541 - 53 = ☐ → Y

7033 - 4474 = ☐ → O

4153 - 2667 = ☐ → B

10530 - 4603 = ☐ → F

7901 - 2942 = ☐ → T

4305 - 1594 = ☐ → N

5076 - 1009 = ☐ → A

2881 - 566 = ☐ → E

10753 - 4164 = ☐ → H

7347 - 904 = ☐ → R

4633 - 83 = ☐ → L

10669 - 4667 = ☐ → S

Scratch space:

CLUE 5 Missing addends - the last clue

Figure out the missing power level needed to fully boost the sound system.

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:

16 + ___ = 28 ☐	10 + ___ = 16 ☐	35 + ___ = 40 ☐	1 + ___ = 9 ☐
21 + ___ = 32 ☐	6 + ___ = 16 ☐	33 + ___ = 36 ☐	19 + ___ = 21 ☐
24 + ___ = 31 ☐	23 + ___ = 24 ☐	8 + ___ = 17 ☐	

Step 2 - cross out the sentence with each answer:

1. The villain popped confetti cannons, then played a wolf howl.
2. The villain summoned harmless bats, then played a monster growl.
3. The villain flashed neon lasers, then played a creepy giggle.
4. The villain created ghost echoes, then played a witch cackle.
5. The villain blasted spooky fog, then played an owl hoot.
6. The villain summoned harmless bats, then played an owl hoot.
7. The villain created ghost echoes, then played a monster growl.
8. The villain blasted spooky fog, then played a witch cackle.
9. The villain blasted spooky fog, then played a wolf howl.
10. The villain created ghost echoes, then played an owl hoot.
11. The villain created ghost echoes, then played a creepy giggle.
12. The villain popped confetti cannons, then played a witch cackle.

TEACHER / PARENT

Answer Key

The Case of the Missing Halloween Microphone

Culprit: Tempo Tom

Ghost Echo · Witch Cackle · Left Handed · Slime Green Wig · Bright Flashlights

Trail: Start 21 → Clue 1 18 → Clue 2 14 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE VILLAIN DOES NOT USE MONSTER GROWL"

What is the value of the 2 in 2,364? = 2000 (T) · What is the value of the 2 in 427? = 20 (U) · What is the value of the 4 in 452? = 400 (L) · What is the value of the 4 in 4,025? = 4000 (W) · What is the value of the 7 in 6,470? = 70 (N) · What is the value of the 2 in 5,283? = 200 (D) · What is the value of the 8 in 6,899? = 800 (V) · What is the value of the 7 in 722? = 700 (S) · What is the value of the 3 in 137? = 30 (A) · What is the value of the 7 in 7,064? = 7000 (O) · What is the value of the 8 in 7,280? = 80 (R) · What is the value of the 1 in 816? = 10 (I) · What is the value of the 1 in 31,803? = 1000 (G) · What is the value of the 9 in 8,965? = 900 (E) · What is the value of the 4 in 2,948? = 40 (H) · What is the value of the 5 in 521? = 500 (M)

Clue 2 (Addition): "WITNESS SAW SNEAK GRAB WITH LEFT HAND"

1282 + 2234 = 3516 (W) · 4761 + 3051 = 7812 (S) · 5741 + 4136 = 9877 (R) · 1815 + 2331 = 4146 (E) · 1516 + 1068 = 2584 (B) · 5055 + 3757 = 8812 (T) · 3624 + 2866 = 6490 (K) · 4450 + 2590 = 7040 (N) · 1602 + 3721 = 5323 (H) · 3400 + 2003 = 5403 (F) · 1242 + 1225 = 2467 (L) · 1532 + 1646 = 3178 (I) · 3968 + 2046 = 6014 (G) · 2950 + 3207 = 6157 (A) · 2052 + 4262 = 6314 (D)

Clue 3 (Fractions of a number): "THE SNEAK RAN FROM BRIGHT FLASHLIGHTS"

2/10 of 160 = 32 (T) · 2/4 of 16 = 8 (R) · 2/6 of 111 = 37 (A) · 1/4 of 112 = 28 (K) · 2/8 of 144 = 36 (O) · 3/5 of 35 = 21 (E) · 1/8 of 40 = 5 (F) · 1/2 of 60 = 30 (B) · 1/5 of 200 = 40 (M) · 1/2 of 52 = 26 (N) · 1/5 of 125 = 25 (S) · 2/8 of 80 = 20 (H) · 5/10 of 36 = 18 (G) · 1/4 of 76 = 19 (I) · 2/3 of 18 = 12 (L)

Clue 4 (Subtraction): "GREEN SYNTHETIC FIBERS LEFT ON STAGE"

7058 - 646 = 6412 (G) · 9485 - 2081 = 7404 (I) · 5815 - 4741 = 1074 (C) · 2541 - 53 = 2488 (Y) · 7033 - 4474 = 2559 (O) · 4153 - 2667 = 1486 (B) · 10530 - 4603 = 5927 (F) · 7901 - 2942 = 4959 (T) · 4305 - 1594 = 2711 (N) · 5076 - 1009 = 4067 (A) · 2881 - 566 = 2315 (E) · 10753 - 4164 = 6589 (H) · 7347 - 904 = 6443 (R) · 4633 - 83 = 4550 (L) · 10669 - 4667 = 6002 (S)

Clue 5 (Missing addends): surviving statement is box 4 → Tempo Tom

16 + ___ = 28 = 12 · 10 + ___ = 16 = 6 · 35 + ___ = 40 = 5 · 1 + ___ = 9 = 8 · 21 + ___ = 32 = 11 · 6 + ___ = 16 = 10 · 33 + ___ = 36 = 3 · 19 + ___ = 21 = 2 · 24 + ___ = 31 = 7 · 23 + ___ = 24 = 1 · 8 + ___ = 17 = 9