The Case of the Missing Diamond Mic

Grade 5 math · Fractions of a number, Multiplication, Skip counting, Rounding · Reading level grades 5-6

Detective: _____ **Date:** _____

Just minutes before the ultimate pop-star soccer kick-off concert, the legendary Diamond Microphone vanished from backstage! The Stage Phantom left behind faint paw prints, stray hair strands, and clues hidden across the arena. Tackle the math clues to uncover 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 Stage Phantom is _____

Possible suspects

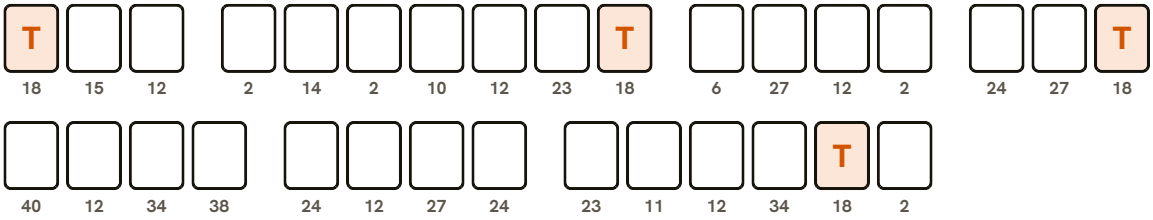
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	SIGNATURE MOVE	STAGE GEAR	DOMINANT HAND	HAIRSTYLE	SECRET DISTRACTION
Rafael Nadal	Ace Tennis Serve	Whiskered Helmet	Right Handed	Neon Waves	Laser Pointer Light
Mia Hamm	High Kick Leap	Whiskered Helmet	Left Handed	High Bun	Catnip Scent
Billie Eilish	Pop Vocal Blast	Purple Ribbon	Left Handed	Neon Waves	Catnip Scent
Serena Williams	Cat Reflex Flip	Sequined Jacket	Left Handed	High Bun	Laser Pointer Light
Dua Lipa	Cat Reflex Flip	Neon Cleats	Right Handed	High Bun	Catnip Scent
Taylor Swift	Ace Tennis Serve	Sparkly Visor	Right Handed	High Bun	Laser Pointer Light
Carlos Alcaraz	Ace Tennis Serve	Sparkly Visor	Right Handed	Neon Waves	Laser Pointer Light
Misty Copeland	Ace Tennis Serve	Neon Cleats	Right Handed	Braided Ponytail	Pop Song Chorus
Sabrina Carpenter	Ace Tennis Serve	Whiskered Helmet	Right Handed	High Bun	Laser Pointer Light
Marta Silva	Turbo Soccer Kick	Whiskered Helmet	Right Handed	Braided Ponytail	Pop Song Chorus
Naomi Osaka	Cat Reflex Flip	Purple Ribbon	Right Handed	High Bun	Laser Pointer Light
Megan Rapinoe	Pop Vocal Blast	Neon Cleats	Left Handed	High Bun	Catnip Scent
Roger Federer	Turbo Soccer Kick	Sequined Jacket	Right Handed	High Bun	Pop Song Chorus
Coco Gauff	Turbo Soccer Kick	Whiskered Helmet	Right Handed	High Bun	Laser Pointer Light
Novak Djokovic	Turbo Soccer Kick	Purple Ribbon	Left Handed	High Bun	Laser Pointer Light
Chloe Kim	Pop Vocal Blast	Purple Ribbon	Left Handed	Braided Ponytail	Pop Song Chorus
Rose Lavelle	Ace Tennis Serve	Purple Ribbon	Right Handed	Neon Waves	Laser Pointer Light
Ariana Grande	Ace Tennis Serve	Purple Ribbon	Right Handed	Braided Ponytail	Pop Song Chorus
Stefani Joanne	Pop Vocal Blast	Neon Cleats	Left Handed	Neon Waves	Catnip Scent
Lionel Messi	Turbo Soccer Kick	Whiskered Helmet	Left Handed	High Bun	Laser Pointer Light
Alex Morgan	Turbo Soccer Kick	Neon Cleats	Right Handed	High Bun	Laser Pointer Light

CLUE 1 Fractions of a number

> The venue manager divided tour merchandise into fractional sets to trace the suspect.

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



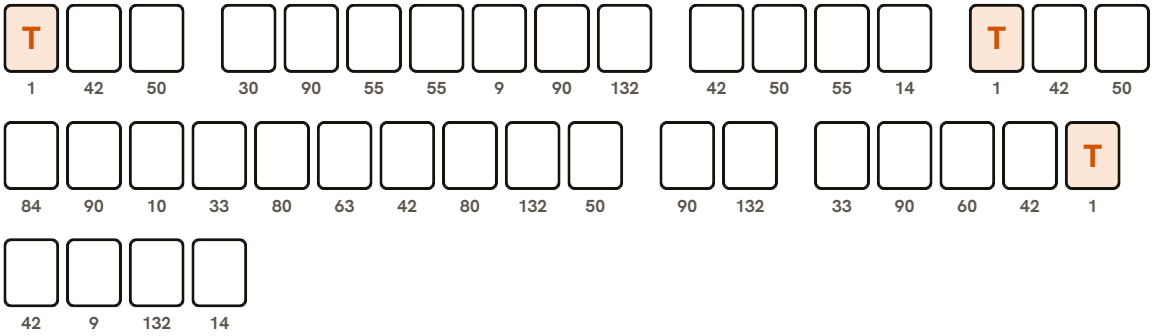
2/5 of 45 = ☐ → T	4/8 of 54 = ☐ → O	2/8 of 24 = ☐ → D
1/5 of 60 = ☐ → E	2/6 of 114 = ☐ → R	1/8 of 16 = ☐ → S
4/6 of 51 = ☐ → A	2/10 of 50 = ☐ → P	1/4 of 60 = ☐ → H
5/10 of 48 = ☐ → N	3/6 of 22 = ☐ → L	2/10 of 115 = ☐ → C
8/10 of 50 = ☐ → W	4/6 of 21 = ☐ → U	

Scratch space:

CLUE 2 Multiplication facts (1-12)

> The dance captain counted total glitter props by multiplying practice rows.

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



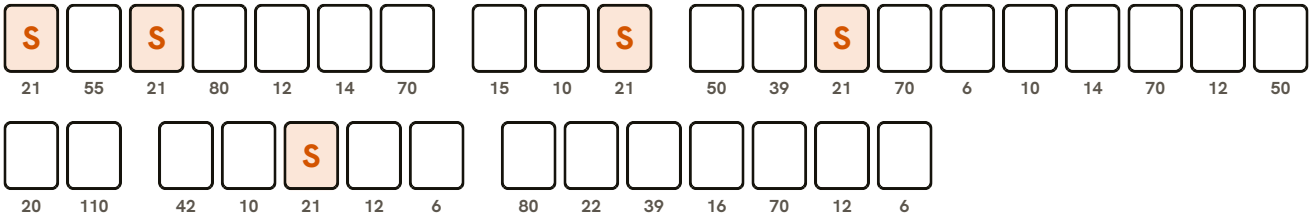
1 × 1 = ☐ → T	5 × 10 = ☐ → E	7 × 2 = ☐ → D
10 × 9 = ☐ → I	10 × 1 = ☐ → C	11 × 12 = ☐ → N
7 × 12 = ☐ → M	6 × 5 = ☐ → V	9 × 7 = ☐ → P
10 × 8 = ☐ → O	5 × 12 = ☐ → G	11 × 5 = ☐ → L
7 × 6 = ☐ → H	1 × 9 = ☐ → A	11 × 3 = ☐ → R

Scratch space:

CLUE 3 Skip counting

The security guard checked stage lights by skip counting down the catwalk.

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



Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, ___, 24, 27 ☐ → **S**

Skip-count by 2s. Fill the blank: 2, 4, ___, 8, 10 ☐ → **R**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, ___, 18, 21 ☐ → **W**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, ___, 12, 14 ☐ → **A**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, ___, 120, 130 ☐ → **Y**

Skip-count by 3s. Fill the blank: 3, 6, 9, ___, 15, 18 ☐ → **E**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, ___, 60, 70 ☐ → **D**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, ___, 24, 26 ☐ → **O**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, ___, 42, 45 ☐ → **I**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, ___, 60, 65 ☐ → **U**

Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, ___, 90, 100 ☐ → **P**

Skip-count by 5s. Fill the blank: 5, 10, 15, ___, 25, 30 ☐ → **B**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, ___, 16, 18 ☐ → **C**

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, ___, 45, 48 ☐ → **L**

Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, ___, 18, 20 ☐ → **N**

Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, ___, 75, 80 ☐ → **T**

Scratch space:

CLUE 4 Rounding

The sound desk radar only displays stadium noise levels rounded to the nearest thousand.

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



Round 674 to the nearest hundred ☐ → **F**

Round 24 to the nearest ten ☐ → **P**

Round 515 to the nearest hundred ☐ → **O**

Round 73 to the nearest ten ☐ → **D**

Round 230 to the nearest ten ☐ → **U**

Round 3,709 to the nearest hundred ☐ → **I**

Round 2,264 to the nearest thousand ☐ → **G**

Round 155 to the nearest hundred ☐ → **N**

Round 6,789 to the nearest thousand ☐ → **A**

Round 49 to the nearest ten ☐ → **B**

Round 367 to the nearest ten ☐ → **M**

Round 4,280 to the nearest hundred ☐ → **E**

Round 107 to the nearest ten ☐ → **H**

Round 2,873 to the nearest hundred ☐ → **R**

Scratch space:

CLUE 5 Fractions of a number - the last clue

> The cat trainer reviewed fractional portions of treats left near security.

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:

1/10 of 50 = ☐	2/4 of 4 = ☐	2/8 of 16 = ☐	1/3 of 27 = ☐
1/6 of 6 = ☐	1/6 of 60 = ☐	2/4 of 14 = ☐	1/4 of 32 = ☐
1/6 of 36 = ☐	3/5 of 5 = ☐	2/3 of 18 = ☐	

Step 2 - cross out the sentence with each answer:

1. The villain executed a high kick leap, then fastened the whiskered helmet.
2. The villain served an ace tennis ball, then tilted the sparkly visor.
3. The villain executed a high kick leap, then zipped up the sequined jacket.
4. The villain boosted a turbo soccer kick, then fastened the whiskered helmet.
5. The villain flipped with cat reflexes, then adjusted the purple ribbon.
6. The villain served an ace tennis ball, then adjusted the purple ribbon.
7. The villain flipped with cat reflexes, then laced up the neon cleats.
8. The villain executed a high kick leap, then tilted the sparkly visor.
9. The villain boosted a turbo soccer kick, then laced up the neon cleats.
10. The villain blasted a loud pop vocal note, then adjusted the purple ribbon.
11. The villain served an ace tennis ball, then fastened the whiskered helmet.
12. The villain served an ace tennis ball, then laced up the neon cleats.

TEACHER / PARENT

Answer Key

The Case of the Missing Diamond Mic

Culprit: Sabrina Carpenter

Ace Tennis Serve · Whiskered Helmet · Right Handed · High Bun · Laser Pointer Light

Trail: Start 21 → Clue 1 16 → Clue 2 10 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE SUSPECT DOES NOT WEAR NEON CLEATS"

2/5 of 45 = 18 (T) · 4/8 of 54 = 27 (O) · 2/8 of 24 = 6 (D) · 1/5 of 60 = 12 (E) · 2/6 of 114 = 38 (R) · 1/8 of 16 = 2 (S) · 4/6 of 51 = 34 (A) · 2/10 of 50 = 10 (P) · 1/4 of 60 = 15 (H) · 5/10 of 48 = 24 (N) · 3/6 of 22 = 11 (L) · 2/10 of 115 = 23 (C) · 8/10 of 50 = 40 (W) · 4/6 of 21 = 14 (U)

Clue 2 (Multiplication facts (1-12)): "THE VILLAIN HELD THE MICROPHONE IN RIGHT HAND"

1 × 1 = 1 (T) · 5 × 10 = 50 (E) · 7 × 2 = 14 (D) · 10 × 9 = 90 (I) · 10 × 1 = 10 (C) · 11 × 12 = 132 (N) · 7 × 12 = 84 (M) · 6 × 5 = 30 (V) · 9 × 7 = 63 (P) · 10 × 8 = 80 (O) · 5 × 12 = 60 (G) · 11 × 5 = 55 (L) · 7 × 6 = 42 (H) · 1 × 9 = 9 (A) · 11 × 3 = 33 (R)

Clue 3 (Skip counting): "SUSPECT WAS DISTRACTED BY LASER POINTER"

Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, ___, 24, 27 = 21 (S) · Skip-count by 2s. Fill the blank: 2, 4, ___, 8, 10 = 6 (R) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, ___, 18, 21 = 15 (W) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, ___, 12, 14 = 10 (A) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, ___, 120, 130 = 110 (Y) · Skip-count by 3s. Fill the blank: 3, 6, 9, ___, 15, 18 = 12 (E) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, ___, 60, 70 = 50 (D) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, ___, 24, 26 = 22 (O) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, ___, 42, 45 = 39 (I) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, ___, 60, 65 = 55 (U) · Skip-count by 10s. Fill the blank: 10, 20, 30, 40, 50, 60, 70, ___, 90, 100 = 80 (P) · Skip-count by 5s. Fill the blank: 5, 10, 15, ___, 25, 30 = 20 (B) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, ___, 16, 18 = 14 (C) · Skip-count by 3s. Fill the blank: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, ___, 45, 48 = 42 (L) · Skip-count by 2s. Fill the blank: 2, 4, 6, 8, 10, 12, 14, ___, 18, 20 = 16 (N) · Skip-count by 5s. Fill the blank: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, ___, 75, 80 = 70 (T)

Clue 4 (Rounding): "FOUND A HAIRPIN FROM A HIGH BUN NEAR DOOR"

Round 674 to the nearest hundred = 700 (F) · Round 24 to the nearest ten = 20 (P) · Round 515 to the nearest hundred = 500 (O) · Round 73 to the nearest ten = 70 (D) · Round 230 to the nearest ten = 230 (U) · Round 3,709 to the nearest hundred = 3700 (I) · Round 2,264 to the nearest thousand = 2000 (G) · Round 155 to the nearest hundred = 200 (N) · Round 6,789 to the nearest thousand = 7000 (A) · Round 49 to the nearest ten = 50 (B) · Round 367 to the nearest ten = 370 (M) · Round 4,280 to the nearest hundred = 4300 (E) · Round 107 to the nearest ten = 110 (H) · Round 2,873 to the nearest hundred = 2900 (R)

Clue 5 (Fractions of a number): surviving statement is box 11 → Sabrina Carpenter

1/10 of 50 = 5 · 2/4 of 4 = 2 · 2/8 of 16 = 4 · 1/3 of 27 = 9 · 1/6 of 6 = 1 · 1/6 of 60 = 10 · 2/4 of 14 = 7 · 1/4 of 32 = 8 · 1/6 of 36 = 6 · 3/5 of 5 = 3 · 2/3 of 18 = 12