



The Great Pop Concert Mystery

Grade 4 math · Place value, Multiplication, Rounding, Bar models, Division · Reading level grades 3-4

Detective: _____ Date: _____

Right before the world tour kickoff, someone snuck backstage and stole the custom Golden Microphone! Help Detective Maya follow the clue trail, solve the concert math, and catch the thief before showtime.

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	SPECIAL MOVE	STAGE FX	MIC HAND	HAIR STYLE	DISTRACTION
Jaxon Jam	Disco Sparkle	Bubble Jet	Left Handed Mic	Silver Bangs	Bright Flash
Axel Audio	Glitter Bomb	Neon Spotlight	Right Handed Mic	Purple Waves	Bright Flash
Owen Octave	Echo Blast	Fog Machine	Right Handed Mic	Silver Bangs	Water Splash
Toby Track	Glitter Bomb	Neon Spotlight	Left Handed Mic	Pink Braids	Water Splash
Chloe Chord	Echo Blast	Confetti Cannon	Left Handed Mic	Pink Braids	Bright Flash
Leo Rhythm	High Note	Spark Fountain	Right Handed Mic	Silver Bangs	Bright Flash
Gemma Groove	Disco Sparkle	Confetti Cannon	Left Handed Mic	Pink Braids	Loud Whistle
Luna Loop	Laser Beam	Neon Spotlight	Left Handed Mic	Purple Waves	Loud Whistle
Nova Beat	Disco Sparkle	Spark Fountain	Right Handed Mic	Silver Bangs	Bright Flash
Ella Echo	Disco Sparkle	Fog Machine	Left Handed Mic	Silver Bangs	Bright Flash
Maya Melody	Disco Sparkle	Neon Spotlight	Left Handed Mic	Purple Waves	Water Splash
Aria Key	High Note	Neon Spotlight	Left Handed Mic	Silver Bangs	Loud Whistle
Harper Harmony	Glitter Bomb	Bubble Jet	Right Handed Mic	Silver Bangs	Loud Whistle
Piper Pitch	Disco Sparkle	Neon Spotlight	Right Handed Mic	Purple Waves	Loud Whistle
Liam Lyric	Laser Beam	Bubble Jet	Left Handed Mic	Silver Bangs	Loud Whistle
Zack Tempo	Echo Blast	Fog Machine	Left Handed Mic	Silver Bangs	Bright Flash
Ruby Remix	Glitter Bomb	Fog Machine	Right Handed Mic	Pink Braids	Loud Whistle
Sienna Song	High Note	Neon Spotlight	Left Handed Mic	Silver Bangs	Bright Flash
Freya Star	Disco Sparkle	Bubble Jet	Left Handed Mic	Purple Waves	Bright Flash
Skye Pop	Disco Sparkle	Confetti Cannon	Left Handed Mic	Silver Bangs	Bright Flash
Caleb Cadence	Echo Blast	Confetti Cannon	Left Handed Mic	Silver Bangs	Loud Whistle

CLUE 1

The backstage security keypad shows concert ticket codes built with place value digits.

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

T																T
600	70	30	8000	7000	400	400	90	7000	900	700	60	30	500	900	60	600
												T				T
800	500	30	90	900	30	60	900	500	80	60	600	400	7000	20	70	600

What is the value of the 6 in 672?

A diagram illustrating a transition. On the left is a rounded rectangle. An arrow points from this rectangle to another rounded rectangle on the right, which contains the letter 'T'.

What is the value of the 5 in 3,519?

What is the value of the 2 in 923?

A diagram showing a mapping from an empty box to a box labeled **G**. The mapping is indicated by a right-pointing arrow.

What is the value of the 4 in 479?

A diagram showing a transition from an empty box to a box containing the letter L. The first box is empty, followed by a right-pointing arrow, and then a second box containing the letter 'L'.

What is the value of the 7 in 171?



What is the value of the 6 in 264?

A diagram illustrating a transition. On the left is a simple rectangular box. An arrow points from this box to a second box on the right. The second box is a rounded square and contains the letter 'O' in the center.

What is the value of the 3 in 5,931?

What is the value of the 9 in 2,094?



Diagram illustrating a transformation or mapping from an empty box to a box labeled **A**.

What is the value of the 8 in 8,912?

A diagram showing a mapping from an empty box to a box containing the variable v . The mapping is indicated by a right-pointing arrow.

What is the value of the 7 in 87,636?

A diagram showing a transition from an empty box to a box containing the letter 'I'. The first box is empty, followed by a right-pointing arrow, and then a second box containing the letter 'I'.

What is the value of the 7 in 738?

A diagram showing a box with a question mark pointing to a box with the letter D.

What is the value of the 8 in 6,683?

A diagram consisting of a rectangular box on the left, followed by a right-pointing arrow, and then another rectangular box on the right containing the letter 'P'.

What is the value of the 8 in 7,841?

A diagram illustrating a transformation. On the left is a simple rectangular box. An arrow points from this box to a second box on the right. The second box contains the letter 'U'.

What is the value of the 9 in 904?

A diagram showing a box with an arrow pointing to a box labeled 'N'.

Scratch space:

Multiplication facts (1-12)

The stage crew counts boxes of pop star outfits stacked neatly in equal rows.

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

24	33	6	120	1	120	54	6	30	24	33	6	11	110	24	33	6	
45	40	30	40	132	24	33	6	40	10	11	6	50	24	33	90	132	110

$6 \times 4 = \boxed{} \rightarrow \boxed{\text{T}}$

$5 \times 10 = \square \rightarrow \mathbf{F}$

$$10 \times 11 = \boxed{} \rightarrow \boxed{\mathbf{D}}$$

$11 \times 1 = \square \rightarrow \boxed{\text{L}}$

$6 \times 5 = \boxed{} \rightarrow \boxed{\text{C}}$

$8 \times 5 = \boxed{} \rightarrow \boxed{1}$

$11 \times 3 = \square \rightarrow \boxed{\text{H}}$

$2 \times 5 = \boxed{} \rightarrow \boxed{\text{R}}$

$$1 \times 1 = \boxed{} \rightarrow \boxed{\mathbf{U}}$$

$6 \times 9 = \square \rightarrow \boxed{\text{P}}$

$10 \times 12 = \boxed{} \rightarrow \boxed{9}$

$3 \times 2 = \square \rightarrow \mathbf{E}$

$10 \times 9 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$9 \times 5 =$ $\rightarrow$ **M**

$12 \times 11 = \square \rightarrow \boxed{\mathbf{N}}$

Scratch space:

CLUE 3 Rounding

The digital sound meter on stage rounds the volume levels to the nearest ten.

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

A									A								
5000	500	1100	200	2300	2900	290	7000	230	5000	90	2900	500	230	200	300	70	430
290	2900	430	90	700	90	20	430	1300	290	3000	700	200	1300	130	230	170	

Round 5,347 to the nearest thousand → **A**

Round 287 to the nearest ten → **T**

Round 230 to the nearest ten → **L**

Round 167 to the nearest ten → **Y**

Round 17 to the nearest ten → **P**

Round 207 to the nearest hundred → **I**

Round 6,674 to the nearest thousand → **F**

Round 265 to the nearest hundred → **N**

Round 87 to the nearest ten → **S**

Round 131 to the nearest ten → **K**

Round 427 to the nearest ten → **E**

Round 1,315 to the nearest hundred → **C**

Round 2,342 to the nearest hundred → **G**

Round 718 to the nearest hundred → **U**

Round 1,084 to the nearest hundred → **R**

Round 2,857 to the nearest hundred → **H**

Round 540 to the nearest hundred → **B**

Round 2,796 to the nearest thousand → **Q**

Round 69 to the nearest ten → **D**

Scratch space:

CLUE 4

Bar model word problems

The tour manager compares dance team rehearsal hours using a bar model chart.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A strand of S A N G S hair turned up at the scene.

128 103 13 60 85 93 33 128

One group collected 126 autograph cards and another group collected 2 autograph cards. How many autograph cards in all?

draw a bar model

Answer: → S

Pop star used $\frac{1}{3}$ of the sparkly passes on the first day. The other 22 sparkly passes were used the next day. How many sparkly passes were there in all?

draw a bar model

Answer: → B

Pop star shares 91 dance ribbons equally among 7 teams. How many dance ribbons does each team get?

draw a bar model

Answer: → L

Pop star shares 206 dance ribbons equally among 2 teams. How many dance ribbons does each team get?

draw a bar model

Answer: → I

Pop star has 10 times as many drumsticks as a teammate. The teammate has 6 drumsticks. How many drumsticks does pop star have?

draw a bar model

Answer: → V

One group collected 12 sparkly passes and another group collected 73 sparkly passes. How many sparkly passes in all?

draw a bar model

Answer: → E

Pop star shares 186 dance ribbons equally among 2 teams. How many dance ribbons does each team get?

draw a bar model

Answer: → R

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

The band splits up spare VIP passes equally among the backup dancers.

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:

$70 \div 10 = \boxed{}$

$16 \div 8 = \boxed{}$

$110 \div 10 = \boxed{}$

$60 \div 6 = \boxed{}$

$4 \div 1 = \boxed{}$

$3 \div 1 = \boxed{}$

$36 \div 4 = \boxed{}$

$88 \div 11 = \boxed{}$

$9 \div 9 = \boxed{}$

$40 \div 8 = \boxed{}$

$72 \div 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain shouted a high note, then turned on a neon spotlight.
2. The villain lit a disco sparkle, then blasted the confetti cannon.
3. The villain shouted a high note, then triggered a spark fountain.
4. The villain blasted an echo, then turned on a neon spotlight.
5. The villain lit a disco sparkle, then turned on a neon spotlight.
6. The villain lit a disco sparkle, then escaped into the fog machine haze.
7. The villain blasted an echo, then escaped into the fog machine haze.
8. The villain blasted an echo, then triggered a spark fountain.
9. The villain tossed a glitter bomb, then escaped into the fog machine haze.
10. The villain fired a laser beam, then floated off in a bubble jet.
11. The villain lit a disco sparkle, then floated off in a bubble jet.
12. The villain fired a laser beam, then blasted the confetti cannon.

Answer Key

The Great Pop Concert Mystery

Culprit: Ella Echo

Disco Sparkle · Fog Machine · Left Handed Mic · Silver Bangs · Bright Flash

Trail: Start 21 → Clue 1 14 → Clue 2 9 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE VILLAIN DOES NOT USE A NEON SPOTLIGHT"

What is the value of the 6 in 672? = 600 (T) · What is the value of the 5 in 3,519? = 500 (S) · What is the value of the 2 in 923? = 20 (G) · What is the value of the 4 in 479? = 400 (L) · What is the value of the 7 in 171? = 70 (H) · What is the value of the 6 in 264? = 60 (O) · What is the value of the 3 in 5,931? = 30 (E) · What is the value of the 9 in 2,094? = 90 (A) · What is the value of the 8 in 8,912? = 8000 (V) · What is the value of the 7 in 87,636? = 7000 (I) · What is the value of the 7 in 738? = 700 (D) · What is the value of the 8 in 6,683? = 80 (P) · What is the value of the 8 in 7,841? = 800 (U) · What is the value of the 9 in 904? = 900 (N)

Clue 2 (Multiplication facts (1-12)): "THE SUSPECT HELD THE MIC IN THEIR LEFT HAND"

$6 \times 4 = 24$ (T) · $5 \times 10 = 50$ (F) · $10 \times 11 = 110$ (D) · $11 \times 1 = 11$ (L) · $6 \times 5 = 30$ (C) · $8 \times 5 = 40$ (I) · $11 \times 3 = 33$ (H) · $2 \times 5 = 10$ (R) · $1 \times 1 = 1$ (U) · $6 \times 9 = 54$ (P) · $10 \times 12 = 120$ (S) · $3 \times 2 = 6$ (E) · $10 \times 9 = 90$ (A) · $9 \times 5 = 45$ (M) · $12 \times 11 = 132$ (N)

Clue 3 (Rounding): "A BRIGHT FLASH BLINDED THE SUSPECT QUICKLY"

Round 5,347 to the nearest thousand = 5000 (A) · Round 287 to the nearest ten = 290 (T) · Round 230 to the nearest ten = 230 (L) · Round 167 to the nearest ten = 170 (Y) · Round 17 to the nearest ten = 20 (P) · Round 207 to the nearest hundred = 200 (I) · Round 6,674 to the nearest thousand = 7000 (F) · Round 265 to the nearest hundred = 300 (N) · Round 87 to the nearest ten = 90 (S) · Round 131 to the nearest ten = 130 (K) · Round 427 to the nearest ten = 430 (E) · Round 1,315 to the nearest hundred = 1300 (C) · Round 2,342 to the nearest hundred = 2300 (G) · Round 718 to the nearest hundred = 700 (U) · Round 1,084 to the nearest hundred = 1100 (R) · Round 2,857 to the nearest hundred = 2900 (H) · Round 540 to the nearest hundred = 500 (B) · Round 2,796 to the nearest thousand = 3000 (Q) · Round 69 to the nearest ten = 70 (D)

Clue 4 (Bar model word problems): "SILVER BANGS"

One group collected 126 autograph cards and another group collected 2 autograph cards. How many autograph cards in all? = 128 (S) · Pop star used $\frac{1}{3}$ of the sparkly passes on the first day. The other 22 sparkly passes were used the next day. How many sparkly passes were there in all? = 33 (B) · Pop star shares 91 dance ribbons equally among 7 teams. How many dance ribbons does each team get? = 13 (L) · Pop star shares 206 dance ribbons equally among 2 teams. How many dance ribbons does each team get? = 103 (I) · Pop star has 10 times as many drumsticks as a teammate. The teammate has 6 drumsticks. How many drumsticks does pop star have? = 60 (V) · One group collected 12 sparkly passes and another group collected 73 sparkly passes. How many sparkly passes in all? = 85 (E) · Pop star shares 186 dance ribbons equally among 2 teams. How many dance ribbons does each team get? = 93 (R)

Clue 5 (Division facts (1-12)): surviving statement is box 6 → Ella Echo

$70 \div 10 = 7$ · $16 \div 8 = 2$ · $110 \div 10 = 11$ · $60 \div 6 = 10$ · $4 \div 1 = 4$ · $3 \div 1 = 3$ · $36 \div 4 = 9$ · $88 \div 11 = 8$ · $9 \div 9 = 1$ · $40 \div 8 = 5$ · $72 \div 6 = 12$