



The Case of the Missing Golden Saxophone

Grade 5 math · Fractions of a number, Multi-step word problems, Order of operations, Multiplication · Reading level grades 5-6

Detective: _____ Date: _____

Just before the big encore, someone slipped into the instrument vault and swiped the legendary Golden Saxophone! The show cannot go on without it, and the arena is packed with ninety thousand waiting fans. It is up to you to crack the case, interview the touring crew, and save the concert!

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 Rogue Roadie 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 PERFORMANCE STYLE	STAGE HABIT	HAIRSTYLE	ACOUSTIC FLAW
Tim	Violin Arpeggio	Spotlight Beam	Barefoot on Stage	Backstage Cap	Too Much Reverb
Dave	Electric Bassline	Dancing Feet	Barefoot on Stage	Backstage Cap	Too Much Reverb
Carter	Heavy Drum Beats	Spotlight Beam	Barefoot on Stage	Short Spikes	Feedback Screech
Danny	Saxophone Solo	Stage Echo	Barefoot on Stage	Short Spikes	Broken Guitar String
Boyd	Electric Bassline	Scat Singing	Barefoot on Stage	Short Spikes	Feedback Screech
Otis	Electric Bassline	Brass Power	Barefoot on Stage	Backstage Cap	Too Much Reverb
Rashawn	Heavy Drum Beats	Spotlight Beam	Wears Sunglasses	Backstage Cap	Too Much Reverb
Sarah	Acoustic Guitar	Spotlight Beam	Barefoot on Stage	Curly Afro	Feedback Screech
Greg	Violin Arpeggio	Stage Echo	Wears Sunglasses	Curly Afro	Broken Guitar String
Blue	Saxophone Solo	Spotlight Beam	Barefoot on Stage	Backstage Cap	Feedback Screech
Bobby	Acoustic Guitar	Brass Power	Barefoot on Stage	Curly Afro	Too Much Reverb
Grace	Heavy Drum Beats	Scat Singing	Barefoot on Stage	Backstage Cap	Too Much Reverb
Al	Violin Arpeggio	Brass Power	Barefoot on Stage	Short Spikes	Broken Guitar String
Granny	Electric Bassline	Spotlight Beam	Barefoot on Stage	Backstage Cap	Feedback Screech
Joy	Acoustic Guitar	Spotlight Beam	Barefoot on Stage	Curly Afro	Broken Guitar String
Stefan	Saxophone Solo	Spotlight Beam	Barefoot on Stage	Backstage Cap	Too Much Reverb
Bill	Electric Bassline	Spotlight Beam	Barefoot on Stage	Short Spikes	Broken Guitar String
Jimi	Violin Arpeggio	Dancing Feet	Barefoot on Stage	Curly Afro	Too Much Reverb
Jeff	Acoustic Guitar	Brass Power	Wears Sunglasses	Backstage Cap	Feedback Screech
Penny	Heavy Drum Beats	Dancing Feet	Wears Sunglasses	Backstage Cap	Too Much Reverb
Miles	Saxophone Solo	Dancing Feet	Wears Sunglasses	Curly Afro	Too Much Reverb

CLUE 1

Fractions of a number

We counted the audience members holding glowing neon signs. A fraction of the crowd spotted someone sneaking out the stage door. Let us calculate this group.

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

A 2x10 grid of boxes. The top row contains the following sequence: an orange box with 'T', three empty boxes, an orange box with 'T', and seven empty boxes. The bottom row contains the following sequence: five empty boxes, two orange boxes with 'T', and three empty boxes. Below each box is a number.

T						T											
4	9	30	32	14	32	25	30	5	4	13	24	30	32	27	24	4	
14	32	30	35	23	2	32	32	25	24	8	30	23					

$1/2$ of 8 = $\rightarrow$ **T**

$$5/10 \text{ of } 48 = \boxed{} \rightarrow \boxed{0}$$

$4/8$ of $4 = \boxed{} \rightarrow \mathbf{A}$

$$2/8 \text{ of } 32 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$3/6$ of $70 = \boxed{} \rightarrow \boxed{\text{B}}$

$3/8$ of $72 = \square \rightarrow$ **N**

$\frac{1}{5}$ of 65 = $\rightarrow$ **D**

$$\frac{1}{5} \text{ of } 45 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$6/8 \text{ of } 40 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$2/8 \text{ of } 92 = \boxed{} \rightarrow \boxed{\text{R}}$$

$5/8$ of $8 = \boxed{} \rightarrow \boxed{\text{C}}$

$$5/6 \text{ of } 30 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$\frac{1}{4} \text{ of } 56 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$1/2 \text{ of } 64 = \boxed{} \rightarrow \boxed{\text{S}}$$

Scratch space:

CLUE 2
Multi-step word problems

The tour buses need to fuel up for the next city. The road crew tracked the total gallons used and the price per mile to find a hidden slip of paper.

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

A witness saw the villain was

B

N
S

G

.

29 9 55 60 38 33 33 34 33 34 9 60

Roadie earned 3 stage passes in each of 3 rounds, plus 26 bonus stage passes. Then 6 stage passes were lost. How many stage passes are left?

Answer: → B

There were 455 guitar picks in all. 15 guitar picks were set aside. The rest were shared equally among 8 Tour Crew. How many guitar picks did each get?

Answer: → R

There were 409 stage passes in all. 29 stage passes were set aside. The rest were shared equally among 10 Tour Crew. How many stage passes did each get?

Answer: → F

There were 123 guitar picks in all. 4 Tour Crew used 24 guitar picks each. The other 3 Tour Crew shared the rest equally. How many guitar picks did each of the other Tour Crew get?

Answer: → A

There were 363 drumsticks in all. 33 drumsticks were set aside. The rest were shared equally among 10 Tour Crew. How many drumsticks did each get?

Answer: → O

There were 272 tour t-shirts in all. 4 Tour Crew used 8 tour t-shirts each. The other 4 Tour Crew shared the rest equally. How many tour t-shirts did each of the other Tour Crew get?

Answer: → E

There were 208 stage passes in all. 2 Tour Crew used 36 stage passes each. The other 4 Tour Crew shared the rest equally. How many stage passes did each of the other Tour Crew get?

Answer: → T

Scratch space:

CLUE 3

Order of operations

The audio team is balancing the speakers. We must follow the correct steps to calculate the sound level and reveal a clue about the thief's escape path.

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

R				R														
35	49	69	49	35	47	53	79	57	57	28	74	22	9	74	23	79	28	
69	79	57	57	44	79	62												

$12 \times 4 - 13 = \square \rightarrow \text{R}$

$3 + 9 \times 6 = \square \rightarrow \text{L}$

$14 + 2 \times 4 = \square \rightarrow \text{O}$

$39 + 5 \times 6 = \square \rightarrow \text{V}$

$26 + 6 \times 3 = \square \rightarrow \text{A}$

$5 + 2 \times 2 = \square \rightarrow \text{P}$

$59 + 4 \times 5 = \square \rightarrow \text{I}$

$4 \times 8 - 4 = \square \rightarrow \text{S}$

$6 \times 10 - 7 = \square \rightarrow \text{W}$

$7 \times 12 - 10 = \square \rightarrow \text{T}$

$56 + 3 \times 2 = \square \rightarrow \text{N}$

$20 + 3 \times 9 = \square \rightarrow \text{B}$

$29 + 4 \times 5 = \square \rightarrow \text{E}$

$9 \times 5 - 22 = \square \rightarrow \text{H}$

Scratch space:

CLUE 4

Multiplication facts (1-12)

A stack of concert posters is arranged in even rows backstage. By multiplying the rows, we can count how many flyers are missing.

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

T			T												
81	24	108	81	24	48	108	144	121	63	54	110	110	108	121	28
7	70	28	120	14	120	28	110								

$9 \times 9 = \square \rightarrow \text{ T }$

$12 \times 12 = \square \rightarrow \text{ F }$

$10 \times 7 = \square \rightarrow \text{ L }$

$11 \times 11 = \square \rightarrow \text{ D }$

$10 \times 12 = \square \rightarrow \text{ C }$

$1 \times 7 = \square \rightarrow \text{ B }$

$11 \times 10 = \square \rightarrow \text{ P }$

$7 \times 2 = \square \rightarrow \text{ K }$

$12 \times 9 = \square \rightarrow \text{ E }$

$9 \times 7 = \square \rightarrow \text{ R }$

$4 \times 7 = \square \rightarrow \text{ A }$

$12 \times 2 = \square \rightarrow \text{ H }$

$8 \times 6 = \square \rightarrow \text{ I }$

$9 \times 6 = \square \rightarrow \text{ O }$

Scratch space:

CLUE 5**Fractions of a number - the last clue**

The drummer divided a bin of custom guitar picks among the front row. Finding the fraction that remained gives us the final detail we need.

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:

$1/6 \text{ of } 18 = \boxed{}$

$4/5 \text{ of } 10 = \boxed{}$

$1/3 \text{ of } 33 = \boxed{}$

$4/10 \text{ of } 25 = \boxed{}$

$6/10 \text{ of } 20 = \boxed{}$

$3/6 \text{ of } 8 = \boxed{}$

$1/10 \text{ of } 20 = \boxed{}$

$1/4 \text{ of } 4 = \boxed{}$

$2/10 \text{ of } 45 = \boxed{}$

$2/6 \text{ of } 15 = \boxed{}$

$2/8 \text{ of } 24 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain sweeps a violin arpeggio, then sings a wild scat chorus.
2. The villain sweeps a violin arpeggio, then dances across the wooden floor.
3. The villain pounds a heavy drum beat, then sings a wild scat chorus.
4. The villain thumps an electric bassline, then creates a huge stage echo.
5. The villain thumps an electric bassline, then sings a wild scat chorus.
6. The villain blasts a saxophone solo, then creates a huge stage echo.
7. The villain thumps an electric bassline, then dances across the wooden floor.
8. The villain blasts a saxophone solo, then flashes a bright spotlight beam.
9. The villain pounds a heavy drum beat, then blows a loud brass note.
10. The villain plays a loud acoustic guitar, then dances across the wooden floor.
11. The villain sweeps a violin arpeggio, then flashes a bright spotlight beam.
12. The villain pounds a heavy drum beat, then flashes a bright spotlight beam.

Answer Key

The Case of the Missing Golden Saxophone

Culprit: Dave

Electric Bassline · Dancing Feet · Barefoot on Stage · Backstage Cap · Too Much Reverb

Trail: Start 21 → Clue 1 17 → Clue 2 13 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE SUSPECT DOES NOT USE BRASS POWER"

$\frac{1}{2}$ of 8 = 4 (T) · $\frac{5}{10}$ of 48 = 24 (O) · $\frac{4}{8}$ of 4 = 2 (A) · $\frac{2}{8}$ of 32 = 8 (W) · $\frac{3}{6}$ of 70 = 35 (B) · $\frac{3}{8}$ of 72 = 27 (N) · $\frac{1}{5}$ of 65 = 13 (D) · $\frac{1}{5}$ of 45 = 9 (H) · $\frac{6}{8}$ of 40 = 30 (E) · $\frac{2}{8}$ of 92 = 23 (R) · $\frac{5}{8}$ of 8 = 5 (C) · $\frac{5}{6}$ of 30 = 25 (P) · $\frac{1}{4}$ of 56 = 14 (U) · $\frac{1}{2}$ of 64 = 32 (S)

Clue 2 (Multi-step word problems): "BAREFOOT ON STAGE"

Roadie earned 3 stage passes in each of 3 rounds, plus 26 bonus stage passes. Then 6 stage passes were lost. How many stage passes are left? = 29 (B) · There were 455 guitar picks in all. 15 guitar picks were set aside. The rest were shared equally among 8 Tour Crew. How many guitar picks did each get? = 55 (R) · There were 409 stage passes in all. 29 stage passes were set aside. The rest were shared equally among 10 Tour Crew. How many stage passes did each get? = 38 (F) · There were 123 guitar picks in all. 4 Tour Crew used 24 guitar picks each. The other 3 Tour Crew shared the rest equally. How many guitar picks did each of the other Tour Crew get? = 9 (A) · There were 363 drumsticks in all. 33 drumsticks were set aside. The rest were shared equally among 10 Tour Crew. How many drumsticks did each get? = 33 (O) · There were 272 tour tshirts in all. 4 Tour Crew used 8 tour tshirts each. The other 4 Tour Crew shared the rest equally. How many tour tshirts did each of the other Tour Crew get? = 60 (E) · There were 208 stage passes in all. 2 Tour Crew used 36 stage passes each. The other 4 Tour Crew shared the rest equally. How many stage passes did each of the other Tour Crew get? = 34 (T)

Clue 3 (Order of operations): "REVERB WILL STOP THIS VILLAIN"

$12 \times 4 - 13 = 35$ (R) · $3 + 9 \times 6 = 57$ (L) · $14 + 2 \times 4 = 22$ (O) · $39 + 5 \times 6 = 69$ (V) · $26 + 6 \times 3 = 44$ (A) · $5 + 2 \times 2 = 9$ (P) · $59 + 4 \times 5 = 79$ (I) · $4 \times 8 - 4 = 28$ (S) · $6 \times 10 - 7 = 53$ (W) · $7 \times 12 - 10 = 74$ (T) · $56 + 3 \times 2 = 62$ (N) · $20 + 3 \times 9 = 47$ (B) · $29 + 4 \times 5 = 49$ (E) · $9 \times 5 - 22 = 23$ (H)

Clue 4 (Multiplication facts (1-12)): "THE THIEF DROPPED A BLACK CAP"

$9 \times 9 = 81$ (T) · $12 \times 12 = 144$ (F) · $10 \times 7 = 70$ (L) · $11 \times 11 = 121$ (D) · $10 \times 12 = 120$ (C) · $1 \times 7 = 7$ (B) · $11 \times 10 = 110$ (P) · $7 \times 2 = 14$ (K) · $12 \times 9 = 108$ (E) · $9 \times 7 = 63$ (R) · $4 \times 7 = 28$ (A) · $12 \times 2 = 24$ (H) · $8 \times 6 = 48$ (I) · $9 \times 6 = 54$ (O)

Clue 5 (Fractions of a number): surviving statement is box 7 → Dave

$\frac{1}{6}$ of 18 = 3 · $\frac{4}{5}$ of 10 = 8 · $\frac{1}{3}$ of 33 = 11 · $\frac{4}{10}$ of 25 = 10 · $\frac{6}{10}$ of 20 = 12 · $\frac{3}{6}$ of 8 = 4 · $\frac{1}{10}$ of 20 = 2 · $\frac{1}{4}$ of 4 = 1 · $\frac{2}{10}$ of 45 = 9 · $\frac{2}{6}$ of 15 = 5 · $\frac{2}{8}$ of 24 = 6