



The Case of the Missing Golden Juice Box

Grade 6 math · Fractions of a number, Percentages, Exponents, Order of operations · Reading level grades 1-2

Detective: _____ **Date:** _____

The Golden Juice Box has vanished from the secret treehouse! The sneaky Prankster climbed up the rope ladder and swiped it right before snack time. Help the Treehouse Club search the woods and find 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 Prankster is _____

Possible suspects

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

NAME	CLUB BADGE	POCKET GEAR	FAVORITE TOY	CAP COLOR	FEAR
Maya	Silver Badge	Super Flashlight	Wooden Sword	Red Cap	Sour Candy
Leo	Gold Badge	Spy Camera	Wooden Sword	Green Cap	Fake Spiders
Lily	Silver Badge	Walkie Talkie	Wooden Sword	Green Cap	Fake Spiders
Cole	Pink Badge	Walkie Talkie	Wooden Sword	Red Cap	Sour Candy
Abby	Green Badge	Pocket Magnifier	Wooden Sword	Red Cap	Sour Candy
Nora	Silver Badge	Spy Camera	Slinky Toy	Blue Cap	Sour Candy
Ben	Pink Badge	Super Flashlight	Slinky Toy	Green Cap	Feather Tickles
Owen	Blue Badge	Spy Camera	Slinky Toy	Green Cap	Feather Tickles
Luke	Pink Badge	Super Flashlight	Slinky Toy	Green Cap	Fake Spiders
Eli	Gold Badge	Laser Pointer	Slinky Toy	Green Cap	Feather Tickles
Noah	Blue Badge	Walkie Talkie	Wooden Sword	Green Cap	Fake Spiders
Jack	Blue Badge	Pocket Magnifier	Wooden Sword	Green Cap	Fake Spiders
Emma	Silver Badge	Walkie Talkie	Wooden Sword	Blue Cap	Fake Spiders
Toby	Gold Badge	Walkie Talkie	Slinky Toy	Red Cap	Fake Spiders
Ruby	Green Badge	Walkie Talkie	Slinky Toy	Green Cap	Sour Candy
Mia	Blue Badge	Walkie Talkie	Slinky Toy	Red Cap	Fake Spiders
Jake	Blue Badge	Spy Camera	Wooden Sword	Green Cap	Sour Candy
Grace	Silver Badge	Super Flashlight	Slinky Toy	Green Cap	Feather Tickles
Zoe	Silver Badge	Super Flashlight	Slinky Toy	Red Cap	Sour Candy
Ella	Pink Badge	Pocket Magnifier	Wooden Sword	Green Cap	Feather Tickles
Finn	Gold Badge	Laser Pointer	Wooden Sword	Green Cap	Fake Spiders

CLUE 1
Fractions of a number

We found a secret note torn into scraps. If we count a fraction of the scraps, we can read the first clue!

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

T																T
15	11	19	8	16	6	6	35	16	23	34	40	19	32	23	40	15

														T		
21	35	25	25	37	35	6	35	32	19	25	4	40	16	23	15	25

$2/10 \text{ of } 75 = \boxed{} \rightarrow \boxed{\text{T}}$

$2/8 \text{ of } 140 = \boxed{} \rightarrow \boxed{\text{A}}$

$2/6 \text{ of } 63 = \boxed{} \rightarrow \boxed{\text{C}}$

$1/4 \text{ of } 44 = \boxed{} \rightarrow \boxed{\text{H}}$

$8/10 \text{ of } 10 = \boxed{} \rightarrow \boxed{\text{V}}$

$4/6 \text{ of } 60 = \boxed{} \rightarrow \boxed{\text{O}}$

$5/10 \text{ of } 68 = \boxed{} \rightarrow \boxed{\text{D}}$

$5/10 \text{ of } 32 = \boxed{} \rightarrow \boxed{\text{I}}$

$4/8 \text{ of } 64 = \boxed{} \rightarrow \boxed{\text{S}}$

$2/4 \text{ of } 38 = \boxed{} \rightarrow \boxed{\text{E}}$

$1/8 \text{ of } 200 = \boxed{} \rightarrow \boxed{\text{R}}$

$5/10 \text{ of } 12 = \boxed{} \rightarrow \boxed{\text{L}}$

$2/4 \text{ of } 74 = \boxed{} \rightarrow \boxed{\text{Y}}$

$1/3 \text{ of } 69 = \boxed{} \rightarrow \boxed{\text{N}}$

$8/10 \text{ of } 5 = \boxed{} \rightarrow \boxed{\text{P}}$

Scratch space:

CLUE 2

The spy walkie-talkie is running out of power. Solve this percentage puzzle to charge the battery and hear the next clue!

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

[illegible]

40% of 25 = → **T**

5% of 260 = → **A**

25% of 36 = $\rightarrow$ **K**

40% of 95 = → **R**

60% of 50 = → **N**

5% of 20 = → **H**

10% of 70 = → **P**

50% of 52 = → **E**

50% of 46 = → ☐

5% of 60 = → **D**

40% of 35 = → **W**

50% of 38 = → **S**

Scratch space:

CLUE 3 Exponents

To reach the high shelf, we must stack storage boxes in square blocks. Let us count them to unlock the next clue!

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

T																
4	100	27	8	128	144	144	64	128	36	324	64	36	64	121	64	16

289	324	243	9	289	64	49	27	343	25	128	256	27	324	343

$2^2 = \square \rightarrow$ T	$4^4 = \square \rightarrow$ D	$5^2 = \square \rightarrow$ P	$3^3 = \square \rightarrow$ E
$7^3 = \square \rightarrow$ S	$2^7 = \square \rightarrow$ I	$3^5 = \square \rightarrow$ O	$7^2 = \square \rightarrow$ K
$18^2 = \square \rightarrow$ R	$4^3 = \square \rightarrow$ A	$3^2 = \square \rightarrow$ M	$2^3 = \square \rightarrow$ V
$6^2 = \square \rightarrow$ N	$2^4 = \square \rightarrow$ Y	$17^2 = \square \rightarrow$ F	$11^2 = \square \rightarrow$ W
$12^2 = \square \rightarrow$ L	$10^2 = \square \rightarrow$ H		

Scratch space:

CLUE 4

Order of operations

We must press the colored buttons on the secret wall in the exact order of operations to open the clue box.

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

A																			
32	9	66	22	20	80	54	20	66	52	52	36	67	32	7	56	52	58	58	
22	36	54	80	52	34	13	53												

$26 + 2 \times 3 = \square \rightarrow \text{A}$

$1 + 2 \times 4 = \square \rightarrow \text{B}$

$6 \times 3 - 11 = \square \rightarrow \text{P}$

$38 + 6 \times 3 = \square \rightarrow \text{F}$

$26 + 2 \times 5 = \square \rightarrow \text{N}$

$30 + 8 \times 3 = \square \rightarrow \text{T}$

$4 \times 12 - 14 = \square \rightarrow \text{M}$

$3 \times 12 - 23 = \square \rightarrow \text{U}$

$8 \times 11 - 21 = \square \rightarrow \text{C}$

$34 + 9 \times 2 = \square \rightarrow \text{E}$

$11 \times 10 - 30 = \square \rightarrow \text{H}$

$4 \times 11 - 24 = \square \rightarrow \text{G}$

$16 + 2 \times 3 = \square \rightarrow \text{I}$

$4 + 7 \times 7 = \square \rightarrow \text{D}$

$38 + 4 \times 7 = \square \rightarrow \text{R}$

$8 \times 11 - 30 = \square \rightarrow \text{L}$

Scratch space:

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

We found a bag of shiny glass marbles. If we share a fraction of them with our team, we will find 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:

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

$1/8 \text{ of } 32 = \boxed{}$

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

$5/10 \text{ of } 22 = \boxed{}$

$1/10 \text{ of } 90 = \boxed{}$

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

$2/3 \text{ of } 15 = \boxed{}$

$1/4 \text{ of } 20 = \boxed{}$

$1/10 \text{ of } 80 = \boxed{}$

$3/6 \text{ of } 24 = \boxed{}$

$2/4 \text{ of } 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain points to a royal blue badge, then looks through a pocket magnifier.
2. The villain flashes a shiny silver badge, then looks through a pocket magnifier.
3. The villain rubs a sparkly pink badge, then whispers into a toy walkie talkie.
4. The villain shows a bright gold badge, then snaps a photo with a spy camera.
5. The villain waves a neon green badge, then whispers into a toy walkie talkie.
6. The villain flashes a shiny silver badge, then whispers into a toy walkie talkie.
7. The villain points to a royal blue badge, then whispers into a toy walkie talkie.
8. The villain rubs a sparkly pink badge, then looks through a pocket magnifier.
9. The villain points to a royal blue badge, then shines a bright red laser pointer.
10. The villain waves a neon green badge, then shines a bright red laser pointer.
11. The villain shows a bright gold badge, then whispers into a toy walkie talkie.
12. The villain shows a bright gold badge, then looks through a pocket magnifier.

Answer Key

The Case of the Missing Golden Juice Box

Culprit: Noah

Blue Badge · Walkie Talkie · Wooden Sword · Green Cap · Fake Spiders

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT CARRY A LASER POINTER"

$2/10$ of 75 = 15 (T) · $2/8$ of 140 = 35 (A) · $2/6$ of 63 = 21 (C) · $1/4$ of 44 = 11 (H) · $8/10$ of 10 = 8 (V) · $4/6$ of 60 = 40 (O) · $5/10$ of 68 = 34 (D) · $5/10$ of 32 = 16 (I) · $4/8$ of 64 = 32 (S) · $2/4$ of 38 = 19 (E) · $1/8$ of 200 = 25 (R) · $5/10$ of 12 = 6 (L) · $2/4$ of 74 = 37 (Y) · $1/3$ of 69 = 23 (N) · $8/10$ of 5 = 4 (P)

Clue 2 (Percentages): "THE PRANKSTER DROPPED A WOODEN SWORD"

40% of 25 = 10 (T) · 5% of 260 = 13 (A) · 25% of 36 = 9 (K) · 40% of 95 = 38 (R) · 60% of 50 = 30 (N) · 5% of 20 = 1 (H) · 10% of 70 = 7 (P) · 50% of 52 = 26 (E) · 50% of 46 = 23 (O) · 5% of 60 = 3 (D) · 40% of 35 = 14 (W) · 50% of 38 = 19 (S)

Clue 3 (Exponents): "THE VILLAIN RAN AWAY FROM FAKE SPIDERS"

$2^2 = 4$ (T) · $4^4 = 256$ (D) · $5^2 = 25$ (P) · $3^3 = 27$ (E) · $7^3 = 343$ (S) · $2^7 = 128$ (I) · $3^5 = 243$ (O) · $7^2 = 49$ (K) · $18^2 = 324$ (R) · $4^3 = 64$ (A) · $3^2 = 9$ (M) · $2^3 = 8$ (V) · $6^2 = 36$ (N) · $2^4 = 16$ (Y) · $17^2 = 289$ (F) · $11^2 = 121$ (W) · $12^2 = 144$ (L) · $10^2 = 100$ (H)

Clue 4 (Order of operations): "A BRIGHT GREEN CAP FELL IN THE MUD"

$26 + 2 \times 3 = 32$ (A) · $1 + 2 \times 4 = 9$ (B) · $6 \times 3 - 11 = 7$ (P) · $38 + 6 \times 3 = 56$ (F) · $26 + 2 \times 5 = 36$ (N) · $30 + 8 \times 3 = 54$ (T) · $4 \times 12 - 14 = 34$ (M) · $3 \times 12 - 23 = 13$ (U) · $8 \times 11 - 21 = 67$ (C) · $34 + 9 \times 2 = 52$ (E) · $11 \times 10 - 30 = 80$ (H) · $4 \times 11 - 24 = 20$ (G) · $16 + 2 \times 3 = 22$ (I) · $4 + 7 \times 7 = 53$ (D) · $38 + 4 \times 7 = 66$ (R) · $8 \times 11 - 30 = 58$ (L)

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

$6/8$ of 8 = 6 · $1/8$ of 32 = 4 · $1/3$ of 3 = 1 · $5/10$ of 22 = 11 · $1/10$ of 90 = 9 · $2/8$ of 8 = 2 · $2/3$ of 15 = 10 · $1/4$ of 20 = 5 · $1/10$ of 80 = 8 · $3/6$ of 24 = 12 · $2/4$ of 6 = 3