



The Case of the Halloween Hoax

Grade 6 math · Fractions of a number, Multiplication, Percentages, Exponents · Reading level grades 5-6

Detective: _____ **Date:** _____

On Halloween Eve, a mysterious culprit disrupted the Hollow Hill Festival and hid the Golden Pumpkin Trophy. The Midnight Mystery Club must examine the clues to unmask the perpetrator before midnight.

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 Mischief Maker is _____

Possible suspects

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

NAME	SPOOKY MAGIC	TRICK ATTACK	DOMINANT HAND	HAUNTED HAIR	SECRET FLAW
Sabrina Shade	bat swarm	spider weave	left handed	orange locks	silver bell
Rowan Raven	bat swarm	poison apple	right handed	orange locks	bright light
Zoe Zombie	ghost flight	grave chill	left handed	raven hair	bright light
Ember Cauldron	shadow shift	fog cloak	left handed	raven hair	silver bell
Luna Night	pumpkin blast	grave chill	left handed	raven hair	salt circle
Boris Bones	curse spell	candy lure	right handed	purple bangs	salt circle
Hester Witch	bat swarm	poison apple	right handed	raven hair	salt circle
Gargoyle Gary	ghost flight	fog cloak	right handed	orange locks	bright light
Gwen Ghoul	pumpkin blast	fog cloak	left handed	raven hair	bright light
Dante Dark	shadow shift	candy lure	right handed	raven hair	silver bell
Ivy Cobweb	pumpkin blast	fog cloak	right handed	raven hair	silver bell
Orson Owl	curse spell	poison apple	right handed	orange locks	silver bell
Morty Crypt	shadow shift	poison apple	left handed	purple bangs	salt circle
Fiona Fog	pumpkin blast	spider weave	left handed	orange locks	bright light
Mina Monster	shadow shift	poison apple	left handed	raven hair	salt circle
Vlad Fang	ghost flight	fog cloak	right handed	raven hair	bright light
Bram Stoker	curse spell	spider weave	left handed	purple bangs	silver bell
Victor Vault	ghost flight	fog cloak	right handed	orange locks	silver bell
Salem Spell	bat swarm	grave chill	right handed	raven hair	silver bell
Tara Tomb	shadow shift	poison apple	right handed	raven hair	silver bell
Piper Pumpkin	ghost flight	fog cloak	right handed	raven hair	silver bell

CLUE 1
Fractions of a number

The suspect dropped a potion recipe book with partial fractions written on the parchment.

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

T																T
4	8	25	24	34	22	22	37	34	6	27	18	25	39	6	18	4

7	39	25	40	37	6	27	17	22	7	28	25	

$2/5 \text{ of } 10 = \square \rightarrow \boxed{\text{T}}$

$1/3 \text{ of } 51 = \square \rightarrow \boxed{\text{Y}}$

$3/5 \text{ of } 45 = \square \rightarrow \boxed{\text{D}}$

$2/10 \text{ of } 140 = \square \rightarrow \boxed{\text{R}}$

$1/8 \text{ of } 56 = \square \rightarrow \boxed{\text{U}}$

$4/8 \text{ of } 44 = \square \rightarrow \boxed{\text{L}}$

$2/10 \text{ of } 195 = \square \rightarrow \boxed{\text{S}}$

$1/10 \text{ of } 180 = \square \rightarrow \boxed{\text{O}}$

$2/8 \text{ of } 148 = \square \rightarrow \boxed{\text{A}}$

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

$4/6 \text{ of } 51 = \square \rightarrow \boxed{\text{I}}$

$4/10 \text{ of } 60 = \square \rightarrow \boxed{\text{V}}$

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

$1/8 \text{ of } 48 = \square \rightarrow \boxed{\text{N}}$

$2/5 \text{ of } 100 = \square \rightarrow \boxed{\text{C}}$

Scratch space:

CLUE 2
Multiplication facts (1-12)

A crate of decorative jack-o-lanterns was arranged in equal rows across the haunted lawn.

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

T					T													T
90	99	70	88	36	90	4	70	80	80	80	35	88	35	49	36	81	99	90
99	35	4	6	70	6	45	36	28	28	35	36	4						

$10 \times 9 = \square \rightarrow \text{T}$

$6 \times 1 = \square \rightarrow \text{D}$

$9 \times 5 = \square \rightarrow \text{V}$

$9 \times 11 = \square \rightarrow \text{H}$

$5 \times 7 = \square \rightarrow \text{A}$

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

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

$8 \times 10 = \square \rightarrow \text{S}$

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

$11 \times 8 = \square \rightarrow \text{W}$

$4 \times 1 = \square \rightarrow \text{N}$

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

$4 \times 9 = \square \rightarrow \text{I}$

Scratch space:

CLUE 3

Percentages

The spectral security meter calculated the exact percentage of glowing ectoplasm in the air.

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

T													T					
32	45	41	23	37	7	7	25	37	13	37	14	14	32	22	35	35	41	12
40	43	25	14	37	7	23	41	18	40	41	7	7						

$40\% \text{ of } 80 = \square \rightarrow \boxed{\text{T}}$

$10\% \text{ of } 120 = \square \rightarrow \boxed{\text{D}}$

$20\% \text{ of } 200 = \square \rightarrow \boxed{\text{B}}$

$25\% \text{ of } 28 = \square \rightarrow \boxed{\text{L}}$

$20\% \text{ of } 115 = \square \rightarrow \boxed{\text{V}}$

$40\% \text{ of } 45 = \square \rightarrow \boxed{\text{R}}$

$25\% \text{ of } 148 = \square \rightarrow \boxed{\text{I}}$

$50\% \text{ of } 44 = \square \rightarrow \boxed{\text{O}}$

$5\% \text{ of } 260 = \square \rightarrow \boxed{\text{N}}$

$20\% \text{ of } 215 = \square \rightarrow \boxed{\text{Y}}$

$10\% \text{ of } 140 = \square \rightarrow \boxed{\text{S}}$

$50\% \text{ of } 70 = \square \rightarrow \boxed{\text{P}}$

$50\% \text{ of } 50 = \square \rightarrow \boxed{\text{A}}$

$10\% \text{ of } 450 = \square \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 820 = \square \rightarrow \boxed{\text{E}}$

Scratch space:

CLUE 4 Exponents

The magic crystal multiplied power levels rapidly using exponential spell steps.

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

T																		
64	216	36	36	256	343	81	36	27	49	36	343	27	49	225	144	81	36	243

400	361	256	36	27	216	361	343	400

$2^6 = \square \rightarrow \text{T}$	$3^5 = \square \rightarrow \text{S}$	$3^3 = \square \rightarrow \text{N}$	$2^8 = \square \rightarrow \text{V}$
$15^2 = \square \rightarrow \text{L}$	$6^2 = \square \rightarrow \text{E}$	$12^2 = \square \rightarrow \text{U}$	$7^3 = \square \rightarrow \text{I}$
$20^2 = \square \rightarrow \text{R}$	$19^2 = \square \rightarrow \text{A}$	$3^4 = \square \rightarrow \text{D}$	$7^2 = \square \rightarrow \text{C}$
$6^3 = \square \rightarrow \text{H}$			

Scratch space:

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

A portion of the candy stash was divided into precise fractional bags at midnight.

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:

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

$5/10 \text{ of } 16 = \boxed{}$

$1/10 \text{ of } 110 = \boxed{}$

$1/3 \text{ of } 15 = \boxed{}$

$2/3 \text{ of } 9 = \boxed{}$

$3/8 \text{ of } 24 = \boxed{}$

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

$1/10 \text{ of } 70 = \boxed{}$

$1/5 \text{ of } 10 = \boxed{}$

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

$1/2 \text{ of } 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain casts curse spell, then spins spider weave.
2. The villain uses shadow shift, then creates fog cloak.
3. The villain casts curse spell, then leaves grave chill.
4. The villain takes ghost flight, then creates fog cloak.
5. The villain summons bat swarm, then creates fog cloak.
6. The villain launches pumpkin blast, then spins spider weave.
7. The villain takes ghost flight, then leaves grave chill.
8. The villain uses shadow shift, then drops poison apple.
9. The villain casts curse spell, then drops poison apple.
10. The villain takes ghost flight, then spins spider weave.
11. The villain summons bat swarm, then leaves grave chill.
12. The villain launches pumpkin blast, then creates fog cloak.

Answer Key

The Case of the Halloween Hoax

Culprit: Ivy Cobweb

pumpkin blast · fog cloak · right handed · raven hair · silver bell

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT USE CANDY LURE"

$\frac{2}{5}$ of 10 = 4 (T) · $\frac{1}{3}$ of 51 = 17 (Y) · $\frac{3}{5}$ of 45 = 27 (D) · $\frac{2}{10}$ of 140 = 28 (R) · $\frac{1}{8}$ of 56 = 7 (U) · $\frac{4}{8}$ of 44 = 22 (L) · $\frac{2}{10}$ of 195 = 39 (S) · $\frac{1}{10}$ of 180 = 18 (O) · $\frac{2}{8}$ of 148 = 37 (A) · $\frac{8}{10}$ of 10 = 8 (H) · $\frac{4}{6}$ of 51 = 34 (I) · $\frac{4}{10}$ of 60 = 24 (V) · $\frac{1}{8}$ of 200 = 25 (E) · $\frac{1}{8}$ of 48 = 6 (N) · $\frac{2}{5}$ of 100 = 40 (C)

Clue 2 (Multiplication facts (1-12)): "THE WITNESS SAW A RIGHT HANDED VILLAIN"

$10 \times 9 = 90$ (T) · $6 \times 1 = 6$ (D) · $9 \times 5 = 45$ (V) · $9 \times 11 = 99$ (H) · $5 \times 7 = 35$ (A) · $7 \times 7 = 49$ (R) · $7 \times 4 = 28$ (L) · $8 \times 10 = 80$ (S) · $7 \times 10 = 70$ (E) · $11 \times 8 = 88$ (W) · $4 \times 1 = 4$ (N) · $9 \times 9 = 81$ (G) · $4 \times 9 = 36$ (I)

Clue 3 (Percentages): "THE VILLAIN IS STOPPED BY A SILVER BELL"

40% of 80 = 32 (T) · 10% of 120 = 12 (D) · 20% of 200 = 40 (B) · 25% of 28 = 7 (L) · 20% of 115 = 23 (V) · 40% of 45 = 18 (R) · 25% of 148 = 37 (I) · 50% of 44 = 22 (O) · 5% of 260 = 13 (N) · 20% of 215 = 43 (Y) · 10% of 140 = 14 (S) · 50% of 70 = 35 (P) · 50% of 50 = 25 (A) · 10% of 450 = 45 (H) · 5% of 820 = 41 (E)

Clue 4 (Exponents): "THE EVIDENCE INCLUDES RAVEN HAIR"

$2^6 = 64$ (T) · $3^5 = 243$ (S) · $3^3 = 27$ (N) · $2^8 = 256$ (V) · $15^2 = 225$ (L) · $6^2 = 36$ (E) · $12^2 = 144$ (U) · $7^3 = 343$ (I) · $20^2 = 400$ (R) · $19^2 = 361$ (A) · $3^4 = 81$ (D) · $7^2 = 49$ (C) · $6^3 = 216$ (H)

Clue 5 (Fractions of a number): surviving statement is box 12 → Ivy Cobweb

$\frac{4}{6}$ of 6 = 4 · $\frac{5}{10}$ of 16 = 8 · $\frac{1}{10}$ of 110 = 11 · $\frac{1}{3}$ of 15 = 5 · $\frac{2}{3}$ of 9 = 6 · $\frac{3}{8}$ of 24 = 9 · $\frac{2}{3}$ of 15 = 10 · $\frac{1}{10}$ of 70 = 7 · $\frac{1}{5}$ of 10 = 2 · $\frac{2}{4}$ of 2 = 1 · $\frac{1}{2}$ of 6 = 3