The Mystery of Midnight Hollow

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone sabotaged the Halloween Carnival and stole the Golden Pumpkin Trophy! The Detective Club must track down clues around the carnival grounds to unmask the villain 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 Pumpkin Thief is _____

Possible suspects

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

NAME	SPOOKY POWER	TRICK GADGET	DOMINANT HAND	COSTUME WIG	SECRET WEAKNESS
Jack Lantern	Candy Morph	Bat Launcher	Left-Handed	Purple Wig	Bright Flashlight
Luna Spellman	Illusion Powder	Bat Launcher	Left-Handed	Purple Wig	Garlic Salt
Grandpa Munster	Spooky Howl	Shadow Lantern	Left-Handed	Purple Wig	Garlic Salt
Pugsley Addams	Spooky Howl	Spider Cannon	Left-Handed	Orange Wig	Garlic Salt
Mary Shelley	Candy Morph	Bat Launcher	Left-Handed	Purple Wig	Garlic Salt
Sabrina Spell	Shadow Step	Glow Slime Bomb	Left-Handed	Black Wig	Garlic Salt
Wolfman Jack	Candy Morph	Shadow Lantern	Left-Handed	Purple Wig	Bright Flashlight
Casper Ghost	Candy Morph	Bat Launcher	Right-Handed	Orange Wig	Bright Flashlight
Broomstick Brenda	Spooky Howl	Glow Slime Bomb	Right-Handed	Black Wig	Bright Flashlight
Herman Munster	Levitation Spell	Spider Cannon	Left-Handed	Purple Wig	Garlic Salt
Morticia Addams	Candy Morph	Shadow Lantern	Right-Handed	Black Wig	Silver Bell
Mummy Curse	Illusion Powder	Bat Launcher	Right-Handed	Purple Wig	Garlic Salt
Gomez Addams	Candy Morph	Spider Cannon	Left-Handed	Orange Wig	Garlic Salt
Wednesday Addams	Spooky Howl	Spider Cannon	Right-Handed	Purple Wig	Garlic Salt
Beetle Juice	Spooky Howl	Shadow Lantern	Right-Handed	Orange Wig	Bright Flashlight
Dracula Vlad	Spooky Howl	Bat Launcher	Right-Handed	Orange Wig	Bright Flashlight
Lily Munster	Illusion Powder	Bat Launcher	Right-Handed	Black Wig	Silver Bell
Eddie Munster	Illusion Powder	Bat Launcher	Left-Handed	Black Wig	Garlic Salt
Igor Assistant	Illusion Powder	Spider Cannon	Left-Handed	Black Wig	Bright Flashlight
Bram Stoker	Shadow Step	Shadow Lantern	Left-Handed	Purple Wig	Silver Bell
Corpse Bride	Levitation Spell	Glow Slime Bomb	Left-Handed	Purple Wig	Garlic Salt

CLUE 1 Percentages

The festival security scanner shows a percentage readout of all trick bags searched.

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

T																		T	
21	43	9	32	16	11	11	12	16	31	28	13	9	39	31	13	21			
30	39	9	12	3	11	13	40	39	11	16	27	9	26	13	27	26			

20% of 105 = ☐ → T

25% of 44 = ☐ → L

40% of 80 = ☐ → V

75% of 40 = ☐ → U

75% of 12 = ☐ → E

5% of 320 = ☐ → I

50% of 80 = ☐ → W

5% of 620 = ☐ → N

25% of 52 = ☐ → O

60% of 65 = ☐ → S

50% of 52 = ☐ → B

75% of 16 = ☐ → A

20% of 15 = ☐ → G

75% of 36 = ☐ → M

10% of 430 = ☐ → H

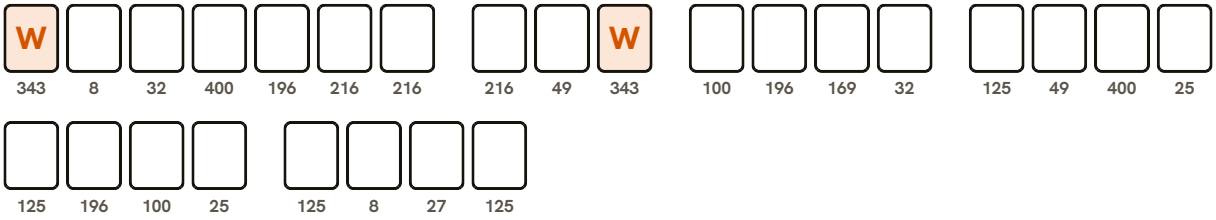
25% of 112 = ☐ → D

Scratch space:

CLUE 2 Exponents

A mysterious pumpkin puzzle machine ranks scores using powers of two.

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



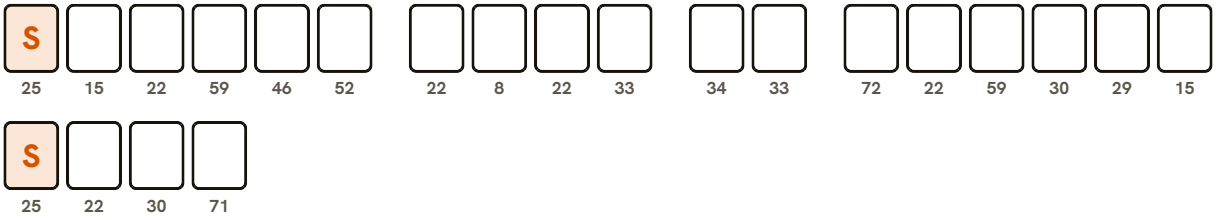
7^3 = ☐ → W	14^2 = ☐ → E	5^3 = ☐ → H	5^2 = ☐ → D
2^5 = ☐ → T	7^2 = ☐ → A	13^2 = ☐ → F	6^3 = ☐ → S
3^3 = ☐ → G	10^2 = ☐ → L	20^2 = ☐ → N	2^3 = ☐ → I

Scratch space:

CLUE 3 Order of operations

> The witch's riddle door opens only when you evaluate a multi-step candy recipe code.

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



9 + 2 × 8 = ☐ → S	47 + 6 × 4 = ☐ → T	44 + 5 × 3 = ☐ → R
5 × 8 - 11 = ☐ → I	11 × 6 - 14 = ☐ → D	11 × 8 - 16 = ☐ → G
4 + 2 × 2 = ☐ → W	8 × 4 - 2 = ☐ → L	6 × 9 - 21 = ☐ → Y
10 + 8 × 3 = ☐ → B	9 × 3 - 5 = ☐ → A	38 + 4 × 2 = ☐ → E
4 × 7 - 13 = ☐ → C		

Scratch space:

CLUE 4 Multiplication facts (1-12)

The head baker multiplies rows of spooky cupcakes to find the total count.

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

P			P																				
121	132	18	121	42	88	81	77	7	22	77	40	88	18	8	90	1	8	99	88	5	88		

11 × 11 = ☐ → P

9 × 10 = ☐ → A

7 × 6 = ☐ → L

4 × 2 = ☐ → S

1 × 7 = ☐ → G

9 × 9 = ☐ → W

11 × 2 = ☐ → F

12 × 11 = ☐ → U

9 × 2 = ☐ → R

8 × 11 = ☐ → E

5 × 8 = ☐ → B

7 × 11 = ☐ → I

1 × 1 = ☐ → T

5 × 1 = ☐ → N

9 × 11 = ☐ → C

Scratch space:

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

> The town mayor divides glowing lanterns equally among all night parade teams.

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:

36 ÷ 4 = ☐ | 56 ÷ 7 = ☐ | 54 ÷ 9 = ☐ | 60 ÷ 6 = ☐ | 12 ÷ 4 = ☐

10 ÷ 5 = ☐ | 4 ÷ 1 = ☐ | 110 ÷ 10 = ☐ | 21 ÷ 3 = ☐ | 4 ÷ 4 = ☐

35 ÷ 7 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain performed a candy morph, then blasted a spider cannon.
2. The villain cast a levitation spell, then set off a ghostly fog machine.
3. The villain cast a levitation spell, then fired a bat launcher.
4. The villain used a shadow step, then blasted a spider cannon.
5. The villain let out a spooky howl, then set off a ghostly fog machine.
6. The villain performed a candy morph, then fired a bat launcher.
7. The villain tossed illusion powder, then lit a shadow lantern.
8. The villain cast a levitation spell, then blasted a spider cannon.
9. The villain let out a spooky howl, then lit a shadow lantern.
10. The villain used a shadow step, then lit a shadow lantern.
11. The villain performed a candy morph, then lit a shadow lantern.
12. The villain tossed illusion powder, then fired a bat launcher.

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TEACHER / PARENT

Answer Key

The Mystery of Midnight Hollow

Culprit: Luna Spellman

Illusion Powder · Bat Launcher · Left-Handed · Purple Wig · Garlic Salt

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT USE A GLOW SLIME BOMB"

20% of 105 = 21 (T) · 25% of 44 = 11 (L) · 40% of 80 = 32 (V) · 75% of 40 = 30 (U) · 75% of 12 = 9 (E) · 5% of 320 = 16 (I) · 50% of 80 = 40 (W) · 5% of 620 = 31 (N) · 25% of 52 = 13 (O) · 60% of 65 = 39 (S) · 50% of 52 = 26 (B) · 75% of 16 = 12 (A) · 20% of 15 = 3 (G) · 75% of 36 = 27 (M) · 10% of 430 = 43 (H) · 25% of 112 = 28 (D)

Clue 2 (Exponents): "WITNESS SAW LEFT HAND HELD HIGH"

7^3 = 343 (W) · 14^2 = 196 (E) · 5^3 = 125 (H) · 5^2 = 25 (D) · 2^5 = 32 (T) · 7^2 = 49 (A) · 13^2 = 169 (F) · 6^3 = 216 (S) · 3^3 = 27 (G) · 10^2 = 100 (L) · 20^2 = 400 (N) · 2^3 = 8 (I)

Clue 3 (Order of operations): "SCARED AWAY BY GARLIC SALT"

9 + 2 × 8 = 25 (S) · 47 + 6 × 4 = 71 (T) · 44 + 5 × 3 = 59 (R) · 5 × 8 - 11 = 29 (I) · 11 × 6 - 14 = 52 (D) · 11 × 8 - 16 = 72 (G) · 4 + 2 × 2 = 8 (W) · 8 × 4 - 2 = 30 (L) · 6 × 9 - 21 = 33 (Y) · 10 + 8 × 3 = 34 (B) · 9 × 3 - 5 = 22 (A) · 38 + 4 × 2 = 46 (E) · 4 × 7 - 13 = 15 (C)

Clue 4 (Multiplication facts (1-12)): "PURPLE WIG FIBERS AT SCENE"

11 × 11 = 121 (P) · 9 × 10 = 90 (A) · 7 × 6 = 42 (L) · 4 × 2 = 8 (S) · 1 × 7 = 7 (G) · 9 × 9 = 81 (W) · 11 × 2 = 22 (F) · 12 × 11 = 132 (U) · 9 × 2 = 18 (R) · 8 × 11 = 88 (E) · 5 × 8 = 40 (B) · 7 × 11 = 77 (I) · 1 × 1 = 1 (T) · 5 × 1 = 5 (N) · 9 × 11 = 99 (C)

Clue 5 (Division facts (1-12)): surviving statement is box 12 → Luna Spellman

36 ÷ 4 = 9 · 56 ÷ 7 = 8 · 54 ÷ 9 = 6 · 60 ÷ 6 = 10 · 12 ÷ 4 = 3 · 10 ÷ 5 = 2 · 4 ÷ 1 = 4 · 110 ÷ 10 = 11 · 21 ÷ 3 = 7 · 4 ÷ 4 = 1 · 35 ÷ 7 = 5