



The Case of the Vanishing Great Pumpkin

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

Detective: _____ Date: _____

Tonight is the annual Halloween Spook Fest, but someone snatched the legendary giant pumpkin right off the main stage! Detective work is needed to clear innocent suspects and unmask the culprit 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	SPOOK ABILITY	SPECIAL SKILL	DOMINANT HAND	DISGUISE PIECE	VULNERABILITY
Astrid Night	Telekinesis	Levitation	Right Handed	Purple Hood	Garlic Spray
Rowena Raven	Bat Summoning	Glowing Eyes	Left Handed	Purple Hood	Garlic Spray
Gomez Addams	Telekinesis	Levitation	Right Handed	Orange Wig	Bright Flashlight
Glinda Star	Telekinesis	Ice Breath	Right Handed	Black Cape	Garlic Spray
Morticia Grim	Spellcasting	Levitation	Left Handed	Orange Wig	Loud Bell
Salem Cat	Shadow Camouflage	Ice Breath	Right Handed	Black Cape	Bright Flashlight
Jack Lantern	Shadow Camouflage	Fog Creation	Left Handed	Black Cape	Loud Bell
Wendy Witch	Potion Brewing	Glowing Eyes	Left Handed	Orange Wig	Loud Bell
Bram Stoker	Potion Brewing	Fog Creation	Left Handed	Purple Hood	Bright Flashlight
Casper Vance	Shadow Camouflage	Sonic Screech	Left Handed	Orange Wig	Loud Bell
Mandy Ghost	Spellcasting	Levitation	Left Handed	Purple Hood	Loud Bell
Gideon Tomb	Potion Brewing	Sonic Screech	Right Handed	Purple Hood	Garlic Spray
Thackery Binx	Potion Brewing	Glowing Eyes	Left Handed	Purple Hood	Loud Bell
Elvira Shadow	Spellcasting	Levitation	Left Handed	Black Cape	Bright Flashlight
Willow Bark	Telekinesis	Glowing Eyes	Left Handed	Purple Hood	Garlic Spray
Igor Crunch	Shadow Camouflage	Glowing Eyes	Left Handed	Orange Wig	Garlic Spray
Merlin Wand	Shadow Camouflage	Levitation	Left Handed	Orange Wig	Loud Bell
Jasper Haunt	Potion Brewing	Fog Creation	Left Handed	Orange Wig	Loud Bell
Vesper Cobweb	Bat Summoning	Glowing Eyes	Right Handed	Orange Wig	Loud Bell
Tabitha Broom	Bat Summoning	Glowing Eyes	Left Handed	Black Cape	Bright Flashlight
Sabrina Spell	Shadow Camouflage	Levitation	Right Handed	Black Cape	Bright Flashlight

CLUE 1
Fractions of a number

The festival security grid calculates fraction shares of total park energy to narrow down suspect logs.

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

T									T										T
39	33	37	21	20	21	26	37	18	39	10	16	37	21	23	16	39			
										T									
20	21	37	14	16	30	18	13	37	6	39	17	16	23						

$2/4 \text{ of } 78 = \boxed{} \rightarrow \boxed{\text{T}}$

$4/8 \text{ of } 28 = \boxed{} \rightarrow \boxed{\text{F}}$

$3/8 \text{ of } 56 = \boxed{} \rightarrow \boxed{\text{S}}$

$1/6 \text{ of } 108 = \boxed{} \rightarrow \boxed{\text{C}}$

$4/6 \text{ of } 24 = \boxed{} \rightarrow \boxed{\text{O}}$

$3/6 \text{ of } 46 = \boxed{} \rightarrow \boxed{\text{N}}$

$3/8 \text{ of } 16 = \boxed{} \rightarrow \boxed{\text{A}}$

$2/10 \text{ of } 185 = \boxed{} \rightarrow \boxed{\text{E}}$

$2/8 \text{ of } 68 = \boxed{} \rightarrow \boxed{\text{I}}$

$2/5 \text{ of } 50 = \boxed{} \rightarrow \boxed{\text{U}}$

$4/8 \text{ of } 26 = \boxed{} \rightarrow \boxed{\text{R}}$

$1/6 \text{ of } 198 = \boxed{} \rightarrow \boxed{\text{H}}$

$1/3 \text{ of } 30 = \boxed{} \rightarrow \boxed{\text{D}}$

$2/3 \text{ of } 39 = \boxed{} \rightarrow \boxed{\text{P}}$

$5/8 \text{ of } 48 = \boxed{} \rightarrow \boxed{\text{G}}$

Scratch space:

CLUE 2

Word problems

The lead detective reviews witness accounts and inventory counts collected across the carnival grounds.

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

A witness saw the villain was

L							D		D
111	15	120	113	33	104	94		15	

There were 135 candy corn bags. 24 were used up. How many candy corn bags are left?

Answer: → **L**

Pumpkin carver found 22 carved pumpkins yesterday and 72 more today. How many carved pumpkins in all?

Answer: → **N**

Pumpkin carver found 11 candy corn bags yesterday and 4 more today. How many candy corn bags in all?

Answer: → **E**

Pumpkin carver lined up 3 rows of 11 spooky lanterns. How many spooky lanterns in all?

Answer: → **H**

Pumpkin carver found 38 spooky lanterns yesterday and 75 more today. How many spooky lanterns in all?

Answer: → **T**

Pumpkin carver lined up 12 rows of 10 glow sticks. How many glow sticks in all?

Answer: → **F**

There were 131 carved pumpkins. 27 were used up. How many carved pumpkins are left?

Answer: → **A**

Scratch space:

CLUE 3

Percentages

A digital scanner measures percentage matches between glowing residue at the scene and costume fabrics.

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

T									T								
22	13	26	10	43	10	40	26	3	22	38	43	28	10	7	17	7	21

34	38	18	30	37	18	43	35	32	26	37	37	10	

$5\% \text{ of } 440 = \square \rightarrow \boxed{\text{T}}$

$25\% \text{ of } 12 = \square \rightarrow \boxed{\text{C}}$

$5\% \text{ of } 700 = \square \rightarrow \boxed{\text{D}}$

$50\% \text{ of } 86 = \square \rightarrow \boxed{\text{U}}$

$50\% \text{ of } 42 = \square \rightarrow \boxed{\text{Y}}$

$25\% \text{ of } 68 = \square \rightarrow \boxed{\text{W}}$

$5\% \text{ of } 360 = \square \rightarrow \boxed{\text{O}}$

$5\% \text{ of } 140 = \square \rightarrow \boxed{\text{A}}$

$5\% \text{ of } 520 = \square \rightarrow \boxed{\text{E}}$

$50\% \text{ of } 56 = \square \rightarrow \boxed{\text{N}}$

$10\% \text{ of } 130 = \square \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 680 = \square \rightarrow \boxed{\text{F}}$

$25\% \text{ of } 152 = \square \rightarrow \boxed{\text{R}}$

$25\% \text{ of } 160 = \square \rightarrow \boxed{\text{P}}$

$5\% \text{ of } 740 = \square \rightarrow \boxed{\text{L}}$

$10\% \text{ of } 320 = \square \rightarrow \boxed{\text{B}}$

$20\% \text{ of } 50 = \square \rightarrow \boxed{\text{S}}$

$10\% \text{ of } 300 = \square \rightarrow \boxed{\text{M}}$

Scratch space:

CLUE 4 Exponents

Analyzing sound wave frequencies from the night security tape requires calculating exponential growth rates.

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

F													F		
128	8	225	27	343	16	361	100	243	16	27	343	8	128	16	27
8	243	16	27	289	9	64	125	289	16	100	361	256	9	27	9

$2^7 = \square \rightarrow \mathbf{F}$	$4^2 = \square \rightarrow \mathbf{A}$	$3^2 = \square \rightarrow \mathbf{E}$	$2^6 = \square \rightarrow \mathbf{W}$
$15^2 = \square \rightarrow \mathbf{U}$	$7^3 = \square \rightarrow \mathbf{D}$	$2^3 = \square \rightarrow \mathbf{O}$	$10^2 = \square \rightarrow \mathbf{T}$
$5^3 = \square \rightarrow \mathbf{I}$	$3^5 = \square \rightarrow \mathbf{R}$	$17^2 = \square \rightarrow \mathbf{G}$	$3^3 = \square \rightarrow \mathbf{N}$
$19^2 = \square \rightarrow \mathbf{S}$	$2^8 = \square \rightarrow \mathbf{C}$		

Scratch space:

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

The final clue relies on finding fractional parts of the remaining candy supply markers.

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:

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

$1/6 \text{ of } 30 = \boxed{}$

$1/5 \text{ of } 20 = \boxed{}$

$1/4 \text{ of } 24 = \boxed{}$

$4/5 \text{ of } 15 = \boxed{}$

$2/8 \text{ of } 40 = \boxed{}$

$7/10 \text{ of } 10 = \boxed{}$

$3/6 \text{ of } 22 = \boxed{}$

$3/6 \text{ of } 4 = \boxed{}$

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

$4/8 \text{ of } 2 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain cast spooky spells on the guards, then blew freezing ice breath.
2. The villain summoned bats to create a distraction, then blew freezing ice breath.
3. The villain lifted heavy crates with telekinesis, then levitated over the fence.
4. The villain cast spooky spells on the guards, then levitated over the fence.
5. The villain hid in the dark shadows, then let out a loud sonic screech.
6. The villain hid in the dark shadows, then blew freezing ice breath.
7. The villain brewed a bubbling sleepy potion, then levitated over the fence.
8. The villain brewed a bubbling sleepy potion, then beamed glowing eyes into the night.
9. The villain hid in the dark shadows, then levitated over the fence.
10. The villain hid in the dark shadows, then created thick fog everywhere.
11. The villain cast spooky spells on the guards, then beamed glowing eyes into the night.
12. The villain lifted heavy crates with telekinesis, then created thick fog everywhere.

Answer Key

The Case of the Vanishing Great Pumpkin

Culprit: Merlin Wand

Shadow Camouflage · Levitation · Left Handed · Orange Wig · Loud Bell

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE SUSPECT DOES NOT USE FOG CREATION"

$\frac{2}{4}$ of 78 = 39 (T) · $\frac{4}{8}$ of 28 = 14 (F) · $\frac{3}{8}$ of 56 = 21 (S) · $\frac{1}{6}$ of 108 = 18 (C) · $\frac{4}{6}$ of 24 = 16 (O) · $\frac{3}{6}$ of 46 = 23 (N) · $\frac{3}{8}$ of 16 = 6 (A) · $\frac{2}{10}$ of 185 = 37 (E) · $\frac{2}{8}$ of 68 = 17 (I) · $\frac{2}{5}$ of 50 = 20 (U) · $\frac{4}{8}$ of 26 = 13 (R) · $\frac{1}{6}$ of 198 = 33 (H) · $\frac{1}{3}$ of 30 = 10 (D) · $\frac{2}{3}$ of 39 = 26 (P) · $\frac{5}{8}$ of 48 = 30 (G)

Clue 2 (Word problems): "LEFT HANDED"

There were 135 candy corn bags. 24 were used up. How many candy corn bags are left? = 111 (L) · Pumpkin carver found 22 carved pumpkins yesterday and 72 more today. How many carved pumpkins in all? = 94 (N) · Pumpkin carver found 11 candy corn bags yesterday and 4 more today. How many candy corn bags in all? = 15 (E) · Pumpkin carver lined up 3 rows of 11 spooky lanterns. How many spooky lanterns in all? = 33 (H) · Pumpkin carver found 38 spooky lanterns yesterday and 75 more today. How many spooky lanterns in all? = 113 (T) · Pumpkin carver lined up 12 rows of 10 glow sticks. How many glow sticks in all? = 120 (F) · There were 131 carved pumpkins. 27 were used up. How many carved pumpkins are left? = 104 (A)

Clue 3 (Percentages): "THE SUSPECT RUNS AWAY FROM LOUD BELLS"

5% of 440 = 22 (T) · 25% of 12 = 3 (C) · 5% of 700 = 35 (D) · 50% of 86 = 43 (U) · 50% of 42 = 21 (Y) · 25% of 68 = 17 (W) · 5% of 360 = 18 (O) · 5% of 140 = 7 (A) · 5% of 520 = 26 (E) · 50% of 56 = 28 (N) · 10% of 130 = 13 (H) · 5% of 680 = 34 (F) · 25% of 152 = 38 (R) · 25% of 160 = 40 (P) · 5% of 740 = 37 (L) · 10% of 320 = 32 (B) · 20% of 50 = 10 (S) · 10% of 300 = 30 (M)

Clue 4 (Exponents): "FOUND A STRAND OF AN ORANGE WIG AT SCENE"

$2^7 = 128$ (F) · $4^2 = 16$ (A) · $3^2 = 9$ (E) · $2^6 = 64$ (W) · $15^2 = 225$ (U) · $7^3 = 343$ (D) · $2^3 = 8$ (O) · $10^2 = 100$ (T) · $5^3 = 125$ (I) · $3^5 = 243$ (R) · $17^2 = 289$ (G) · $3^3 = 27$ (N) · $19^2 = 361$ (S) · $2^8 = 256$ (C)

Clue 5 (Fractions of a number): surviving statement is box 9 → Merlin Wand

$\frac{8}{10}$ of 10 = 8 · $\frac{1}{6}$ of 30 = 5 · $\frac{1}{5}$ of 20 = 4 · $\frac{1}{4}$ of 24 = 6 · $\frac{4}{5}$ of 15 = 12 · $\frac{2}{8}$ of 40 = 10 · $\frac{7}{10}$ of 10 = 7 · $\frac{3}{6}$ of 22 = 11 · $\frac{3}{6}$ of 4 = 2 · $\frac{2}{4}$ of 6 = 3 · $\frac{4}{8}$ of 2 = 1