



The Upside Outbreak

Grade 5 math · Multiplication, Fractions of a number, Order of operations, Rounding, Missing addends · Reading level grades 3-4

Detective: _____ Date: _____

A strange portal opened near the old arcade! A mystery villain interrupted the town radio broadcast and took the chief AV director into the shadow realm. Examine the clues to find the villain.

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 Shadow Intruder is _____

Possible suspects

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

NAME	MAIN RELIC	PSI ABILITY	GRIP STYLE	HAIR STYLE	WEAKNESS
Eddie Munson	Cassette Player	Portal Drift	Right Handed	Curly Shag	Loud Synth Beats
Barbara Holland	Ham Radio	Mind Blast	Right Handed	Spiky Mullet	Bright Flares
Jonathan Byers	Ham Radio	Mind Blast	Right Handed	Curly Shag	Bright Flares
Dustin Henderson	Ham Radio	Telekinesis	Left Handed	Curly Shag	Loud Synth Beats
Argyle Jones	Ham Radio	Portal Drift	Right Handed	Spiky Mullet	Bright Flares
Erica Sinclair	Cassette Player	Time Reversal	Left Handed	Curly Shag	Bright Flares
Vickie Dunne	Cassette Player	Telekinesis	Right Handed	Spiky Mullet	Bright Flares
Lucas Sinclair	Ham Radio	Shadow Camo	Left Handed	Buzz Cut	Bright Flares
Will Byers	Plasma Lantern	Shadow Camo	Right Handed	Spiky Mullet	Loud Synth Beats
Suzie Bingham	Plasma Lantern	Mind Blast	Right Handed	Spiky Mullet	Bright Flares
Mike Wheeler	Plasma Lantern	Telekinesis	Left Handed	Curly Shag	Bright Flares
Robin Buckley	Ham Radio	Telekinesis	Left Handed	Curly Shag	Bright Flares
Max Mayfield	Ham Radio	Shadow Camo	Left Handed	Spiky Mullet	Bright Flares
Karen Wheeler	Walkie Tracker	Portal Drift	Right Handed	Curly Shag	Bright Flares
Nancy Wheeler	Plasma Lantern	Shadow Camo	Right Handed	Buzz Cut	Bright Flares
Chrissy Cunningham	Super Slingshot	Mind Blast	Right Handed	Spiky Mullet	Salty Waffles
Murray Bauman	Ham Radio	Telekinesis	Left Handed	Spiky Mullet	Salty Waffles
Joyce Byers	Plasma Lantern	Portal Drift	Right Handed	Spiky Mullet	Bright Flares
Eleven Hopper	Plasma Lantern	Shadow Camo	Left Handed	Curly Shag	Bright Flares
Sam Owens	Ham Radio	Shadow Camo	Right Handed	Spiky Mullet	Bright Flares
Jim Hopper	Plasma Lantern	Shadow Camo	Left Handed	Spiky Mullet	Bright Flares

CLUE 1

Multiplication facts (1-12)

We counted the boxes of batteries stacked in equal rows across the dark lab store room.

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

T																T
33	27	49	2	15	11	11	40	15	8	48	110	49	14	8	110	33

										T	
81	14	49	90	15	8	48	144	11	40	14	33

$3 \times 11 = \square \rightarrow \boxed{\text{T}}$

$4 \times 2 = \square \rightarrow \boxed{\text{N}}$

$12 \times 12 = \square \rightarrow \boxed{\text{B}}$

$5 \times 3 = \square \rightarrow \boxed{\text{I}}$

$2 \times 1 = \square \rightarrow \boxed{\text{V}}$

$4 \times 12 = \square \rightarrow \boxed{\text{D}}$

$9 \times 9 = \square \rightarrow \boxed{\text{U}}$

$3 \times 9 = \square \rightarrow \boxed{\text{H}}$

$10 \times 11 = \square \rightarrow \boxed{\text{O}}$

$2 \times 7 = \square \rightarrow \boxed{\text{S}}$

$1 \times 11 = \square \rightarrow \boxed{\text{L}}$

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

$4 \times 10 = \square \rightarrow \boxed{\text{A}}$

$10 \times 9 = \square \rightarrow \boxed{\text{M}}$

Scratch space:

CLUE 2
Fractions of a number

Only a fraction of the radio towers still had power to transmit our signal.

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

T							T						T						
12	38	9	31	4	4	12	30	10	39	26	12	8	8	38	4	25	6		
				T															
10	39	21	38	12	38	6	26	18	9	18	8	25	39	26	21				

$1/4 \text{ of } 48 = \square \rightarrow \boxed{\text{T}}$

$1/3 \text{ of } 24 = \square \rightarrow \boxed{\text{S}}$

$1/6 \text{ of } 186 = \square \rightarrow \boxed{\text{F}}$

$4/6 \text{ of } 57 = \square \rightarrow \boxed{\text{H}}$

$4/6 \text{ of } 15 = \square \rightarrow \boxed{\text{R}}$

$5/10 \text{ of } 60 = \square \rightarrow \boxed{\text{P}}$

$6/10 \text{ of } 10 = \square \rightarrow \boxed{\text{A}}$

$1/3 \text{ of } 27 = \square \rightarrow \boxed{\text{E}}$

$1/5 \text{ of } 105 = \square \rightarrow \boxed{\text{G}}$

$3/4 \text{ of } 24 = \square \rightarrow \boxed{\text{D}}$

$2/6 \text{ of } 78 = \square \rightarrow \boxed{\text{N}}$

$4/8 \text{ of } 78 = \square \rightarrow \boxed{\text{I}}$

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

$1/6 \text{ of } 150 = \square \rightarrow \boxed{\text{W}}$

Scratch space:

CLUE 3

Order of operations

To decode the secret frequency we followed a multi step math puzzle on the console.

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

T								T											
15	59	53	21	11	57	32	15	53	48	24	16	53	19	24	48	11	21		

					T								
68	48	56	73	59	15	24	16	13	48	53	32		

$11 \times 3 - 18 = \square \rightarrow \boxed{\text{T}}$

$8 \times 6 - 24 = \square \rightarrow \boxed{\text{F}}$

$11 \times 7 - 9 = \square \rightarrow \boxed{\text{B}}$

$3 + 9 \times 2 = \square \rightarrow \boxed{\text{M}}$

$11 \times 7 - 4 = \square \rightarrow \boxed{\text{G}}$

$10 \times 7 - 17 = \square \rightarrow \boxed{\text{E}}$

$11 \times 6 - 7 = \square \rightarrow \boxed{\text{H}}$

$24 + 8 \times 4 = \square \rightarrow \boxed{\text{I}}$

$3 \times 9 - 8 = \square \rightarrow \boxed{\text{D}}$

$6 \times 5 - 14 = \square \rightarrow \boxed{\text{L}}$

$49 + 4 \times 2 = \square \rightarrow \boxed{\text{N}}$

$14 + 3 \times 6 = \square \rightarrow \boxed{\text{S}}$

$4 \times 8 - 19 = \square \rightarrow \boxed{\text{A}}$

$3 + 2 \times 4 = \square \rightarrow \boxed{\text{O}}$

$20 + 4 \times 7 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 4 Rounding

The arcade score screen glitched and rounded all energy levels to the nearest hundred.

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

S						S				S									
170	300	2900	700	7000	20	170	130	90	700	170	370	1700	110	30					
290	2000	1300	1300	1100	300	230	1100	2900	1100	1300	1100	90	300	3700	1100	200	1700	7000	20

Round 174 to the nearest ten → **S**

Round 91 to the nearest ten → **F**

Round 233 to the nearest ten → **W**

Round 7,123 to the nearest thousand → **N**

Round 3,723 to the nearest hundred → **B**

Round 334 to the nearest hundred → **T**

Round 289 to the nearest ten → **M**

Round 110 to the nearest ten → **K**

Round 28 to the nearest ten → **Y**

Round 1,694 to the nearest hundred → **I**

Round 1,132 to the nearest hundred → **E**

Round 131 to the nearest ten → **O**

Round 1,311 to the nearest hundred → **L**

Round 371 to the nearest ten → **P**

Round 249 to the nearest hundred → **H**

Round 2,472 to the nearest thousand → **U**

Round 693 to the nearest hundred → **A**

Round 2,923 to the nearest hundred → **R**

Round 23 to the nearest ten → **D**

Scratch space:

CLUE 5**Missing addends - the last clue**

We found some missing radio tubes needed to total our required battery output.

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:

$20 + \underline{\quad} = 26$

$33 + \underline{\quad} = 37$

$4 + \underline{\quad} = 14$

$26 + \underline{\quad} = 29$

$19 + \underline{\quad} = 20$

$35 + \underline{\quad} = 42$

$20 + \underline{\quad} = 28$

$20 + \underline{\quad} = 25$

$13 + \underline{\quad} = 25$

$37 + \underline{\quad} = 46$

$33 + \underline{\quad} = 44$

Step 2 - cross out the sentence with each answer:

1. The villain shot down the glowing sign, then warped local time slightly.
2. The villain broadcasted creepy static, then stepped through a portal.
3. The villain played the cassette backwards, then stepped through a portal.
4. The villain played the cassette backwards, then floated objects around.
5. The villain jammed the radio tower, then warped local time slightly.
6. The villain broadcasted creepy static, then vanished into shadow camo.
7. The villain jammed the radio tower, then blasted minds with telepathy.
8. The villain played the cassette backwards, then warped local time slightly.
9. The villain shot down the glowing sign, then floated objects around.
10. The villain lit up the plasma grid, then stepped through a portal.
11. The villain broadcasted creepy static, then floated objects around.
12. The villain jammed the radio tower, then stepped through a portal.

Answer Key

The Upside Outbreak

Culprit: Argyle Jones

Ham Radio · Portal Drift · Right Handed · Spiky Mullet · Bright Flares

Trail: Start 21 → Clue 1 17 → Clue 2 8 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT USE MIND BLAST"

$3 \times 11 = 33$ (T) · $4 \times 2 = 8$ (N) · $12 \times 12 = 144$ (B) · $5 \times 3 = 15$ (I) · $2 \times 1 = 2$ (V) · $4 \times 12 = 48$ (D) · $9 \times 9 = 81$ (U) · $3 \times 9 = 27$ (H) · $10 \times 11 = 110$ (O) · $2 \times 7 = 14$ (S) · $1 \times 11 = 11$ (L) · $7 \times 7 = 49$ (E) · $4 \times 10 = 40$ (A) · $10 \times 9 = 90$ (M)

Clue 2 (Fractions of a number): "THE FOOTPRINTS SHOW A RIGHT HANDED SWING"

$\frac{1}{4}$ of 48 = 12 (T) · $\frac{1}{3}$ of 24 = 8 (S) · $\frac{1}{6}$ of 186 = 31 (F) · $\frac{4}{6}$ of 57 = 38 (H) · $\frac{4}{6}$ of 15 = 10 (R) · $\frac{5}{10}$ of 60 = 30 (P) · $\frac{6}{10}$ of 10 = 6 (A) · $\frac{1}{3}$ of 27 = 9 (E) · $\frac{1}{5}$ of 105 = 21 (G) · $\frac{3}{4}$ of 24 = 18 (D) · $\frac{2}{6}$ of 78 = 26 (N) · $\frac{4}{8}$ of 78 = 39 (I) · $\frac{3}{6}$ of 8 = 4 (O) · $\frac{1}{6}$ of 150 = 25 (W)

Clue 3 (Order of operations): "THE MONSTER FLED FROM BRIGHT FLARES"

$11 \times 3 - 18 = 15$ (T) · $8 \times 6 - 24 = 24$ (F) · $11 \times 7 - 9 = 68$ (B) · $3 + 9 \times 2 = 21$ (M) · $11 \times 7 - 4 = 73$ (G) · $10 \times 7 - 17 = 53$ (E) · $11 \times 6 - 7 = 59$ (H) · $24 + 8 \times 4 = 56$ (I) · $3 \times 9 - 8 = 19$ (D) · $6 \times 5 - 14 = 16$ (L) · $49 + 4 \times 2 = 57$ (N) · $14 + 3 \times 6 = 32$ (S) · $4 \times 8 - 19 = 13$ (A) · $3 + 2 \times 4 = 11$ (O) · $20 + 4 \times 7 = 48$ (R)

Clue 4 (Rounding): "STRANDS OF A SPIKY MULLET WERE LEFT BEHIND"

Round 174 to the nearest ten = 170 (S) · Round 91 to the nearest ten = 90 (F) · Round 233 to the nearest ten = 230 (W) · Round 7,123 to the nearest thousand = 7000 (N) · Round 3,723 to the nearest hundred = 3700 (B) · Round 334 to the nearest hundred = 300 (T) · Round 289 to the nearest ten = 290 (M) · Round 110 to the nearest ten = 110 (K) · Round 28 to the nearest ten = 30 (Y) · Round 1,694 to the nearest hundred = 1700 (I) · Round 1,132 to the nearest hundred = 1100 (E) · Round 131 to the nearest ten = 130 (O) · Round 1,311 to the nearest hundred = 1300 (L) · Round 371 to the nearest ten = 370 (P) · Round 249 to the nearest hundred = 200 (H) · Round 2,472 to the nearest thousand = 2000 (U) · Round 693 to the nearest hundred = 700 (A) · Round 2,923 to the nearest hundred = 2900 (R) · Round 23 to the nearest ten = 20 (D)

Clue 5 (Missing addends): surviving statement is box 2 → Argyle Jones

$20 + \underline{\quad} = 26 = 6$ · $33 + \underline{\quad} = 37 = 4$ · $4 + \underline{\quad} = 14 = 10$ · $26 + \underline{\quad} = 29 = 3$ · $19 + \underline{\quad} = 20 = 1$ · $35 + \underline{\quad} = 42 = 7$ · $20 + \underline{\quad} = 28 = 8$ · $20 + \underline{\quad} = 25 = 5$ · $13 + \underline{\quad} = 25 = 12$ · $37 + \underline{\quad} = 46 = 9$ · $33 + \underline{\quad} = 44 = 11$