



The Mystery of the Shadow Rift

Grade 5 math · Multiplication, Multi-step word problems, Word problems, Subtraction, Missing addends · Reading level grades 3-4

Detective: _____ **Date:** _____

Strange lights are flashing over Shadow Creek and the local radio station went quiet! A mysterious Shadow Sneaker sneaking around town has taken the master broadcast tape. Help the Pine Valley AV Club solve the math puzzles, gather clues, and unmask the intruder!

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 Sneaker is _____

Possible suspects

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

NAME	MAIN POWER	EXTRA POWER	TELL	HAIR STYLE	WEAKNESS
Mike Wheeler	Mind Pulse	Gravity Flip	Wears Headphones	Curly Mullet	Bright Flashlight
Karen Wheeler	Glowing Rift	Time Slow	Wears Bandana	Curly Mullet	Bright Flashlight
Will Byers	Energy Sparks	Sonic Screech	Wears Bandana	Messy Waves	Salt Water
Vickie	Glowing Rift	Laser Beam	Wears Headphones	Curly Mullet	Bright Flashlight
Robin Buckley	Shadow Cloak	Sonic Screech	Wears Bandana	Curly Mullet	Loud Music
Lucas Sinclair	Energy Sparks	Laser Beam	Wears Bandana	Spiky Buzz	Bright Flashlight
Eddie Munson	Telepathy Wave	Gravity Flip	Wears Bandana	Curly Mullet	Loud Music
Patrick McKinney	Telepathy Wave	Time Slow	Wears Bandana	Curly Mullet	Loud Music
Claudia Henderson	Shadow Cloak	Freeze Touch	Wears Headphones	Spiky Buzz	Loud Music
Chrissy Cunningham	Shadow Cloak	Laser Beam	Wears Bandana	Curly Mullet	Loud Music
Eden Bingham	Telepathy Wave	Time Slow	Wears Bandana	Spiky Buzz	Loud Music
Joyce Byers	Mind Pulse	Laser Beam	Wears Bandana	Curly Mullet	Loud Music
Jonathan Byers	Energy Sparks	Laser Beam	Wears Headphones	Spiky Buzz	Loud Music
Fred Benson	Shadow Cloak	Sonic Screech	Wears Bandana	Messy Waves	Loud Music
Erica Sinclair	Glowing Rift	Freeze Touch	Wears Headphones	Curly Mullet	Loud Music
Jim Hopper	Glowing Rift	Freeze Touch	Wears Headphones	Curly Mullet	Salt Water
Gareth	Shadow Cloak	Laser Beam	Wears Headphones	Messy Waves	Salt Water
Dustin Henderson	Energy Sparks	Freeze Touch	Wears Headphones	Messy Waves	Salt Water
Steve Harrington	Shadow Cloak	Gravity Flip	Wears Bandana	Spiky Buzz	Salt Water
Argyle	Mind Pulse	Time Slow	Wears Bandana	Spiky Buzz	Bright Flashlight
Murray Bauman	Shadow Cloak	Laser Beam	Wears Bandana	Curly Mullet	Salt Water

CLUE 1 Multiplication facts (1-12)

The AV Club lines up cassette tapes on equal racks to decode a mysterious signal.

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

32 2 90 14 15 42 42 30 15 7 63 49 90 36 7 49 32

64 36 90 108 77 30 14 15 32 4 70 42 15 21

$4 \times 8 = \boxed{} \rightarrow \boxed{\text{T}}$

$9 \times 12 = \square \rightarrow \mathbf{G}$

$3 \times 5 = \boxed{} \rightarrow \boxed{1}$

$10 \times 3 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$$7 \times 7 = \boxed{} \rightarrow \boxed{0}$$

$9 \times 7 = \square \rightarrow \boxed{\text{D}}$

$$2 \times 1 = \boxed{} \rightarrow \boxed{\text{H}}$$

$6 \times 7 = \square \rightarrow \boxed{\text{L}}$

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

$6 \times 6 = \square \rightarrow \mathbf{S}$

$2 \times 7 = \square \rightarrow \mathbf{V}$

$8 \times 8 = \square \rightarrow \boxed{\mathbf{U}}$

$4 \times 1 = \square \rightarrow \boxed{\text{Y}}$

$7 \times 11 = \boxed{} \rightarrow \boxed{\mathbf{R}}$

$10 \times 7 = \boxed{} \rightarrow \boxed{\mathbf{F}}$

$7 \times 1 = \square \rightarrow \boxed{\mathbf{N}}$

$3 \times 7 = \boxed{} \rightarrow \boxed{\text{P}}$

Scratch space:

CLUE 2

Multi-step word problems

To pack gear for the search, the squad counts battery packs and flashlights across several crates.

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

A witness saw the villain was

W									D			
14	16	47	12	89	55	47	10		47	10	47	

Radio Scout collected 38 cassette tapes in the morning and 46 cassette tapes in the afternoon, then split them equally among 6 Pine Valley AV Club. How many cassette tapes did each get?

Answer: → **W**

There were 145 flashlights in all. 37 flashlights were set aside. The rest were shared equally among 9 Pine Valley AV Club. How many flashlights did each get?

Answer: → **R**

Radio Scout collected 281 batteries in the morning and 49 batteries in the afternoon, then split them equally among 6 Pine Valley AV Club. How many batteries did each get?

Answer: → **B**

Radio Scout collected 7 cassette tapes in the morning and 57 cassette tapes in the afternoon, then split them equally among 4 Pine Valley AV Club. How many cassette tapes did each get?

Answer: → **E**

Radio Scout collected 18 cassette tapes in the morning and 76 cassette tapes in the afternoon, then split them equally among 2 Pine Valley AV Club. How many cassette tapes did each get?

Answer: → **A**

Radio Scout collected 10 batteries in the morning and 10 batteries in the afternoon, then split them equally among 2 Pine Valley AV Club. How many batteries did each get?

Answer: → **N**

There were 419 waffles in all. 4 Pine Valley AV Club used 38 waffles each. The other 3 Pine Valley AV Club shared the rest equally. How many waffles did each of the other Pine Valley AV Club get?

Answer: → **S**

Scratch space:

CLUE 3

Word problems

Checking the radio tower range requires tracking the distance between walkie talkie signals.

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

Someone scared the villain off with

L								C
20	82	18	117	53	18	119	22	

Radio Scout lined up 5 rows of 4 batteries. How many batteries in all?

Answer: → **L**

There were 126 flashlights. 9 were used up. How many flashlights are left?

Answer: → **D**

Radio Scout lined up 3 rows of 6 batteries. How many batteries in all?

Answer: → **U**

There were 89 flashlights. 36 were used up. How many flashlights are left?

Answer: → **M**

Radio Scout found 12 cassette tapes yesterday and 10 more today. How many cassette tapes in all?

Answer: → **I**

There were 143 batteries. 24 were used up. How many batteries are left?

Answer: → **S**

Radio Scout found 34 cassette tapes yesterday and 48 more today. How many cassette tapes in all?

Answer: → **O**

Scratch space:

CLUE 4
Subtraction

The team measures how much power is left in the giant flashlight after searching the woods.

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

C																	
4578	1010	3604	2379	5192	3916	1010	2379	2379	3334	8567	8429	8567	3604	2949	2727	7878	8429
1810	3334	3604	3334	2773	1557	1010	2727	7878	1557	2727	8567	2203	3334	7878	1557	1557	3604

$5924 - 1346 = \square \rightarrow \text{C}$

$5626 - 4069 = \square \rightarrow \text{O}$

$5008 - 2235 = \square \rightarrow \text{F}$

$3189 - 810 = \square \rightarrow \text{L}$

$5952 - 3225 = \square \rightarrow \text{N}$

$6608 - 3659 = \square \rightarrow \text{A}$

$9074 - 3882 = \square \rightarrow \text{Y}$

$4739 - 3729 = \square \rightarrow \text{U}$

$10422 - 1993 = \square \rightarrow \text{S}$

$6171 - 3968 = \square \rightarrow \text{H}$

$7481 - 3565 = \square \rightarrow \text{M}$

$2395 - 585 = \square \rightarrow \text{W}$

$13359 - 4792 = \square \rightarrow \text{T}$

$5859 - 2525 = \square \rightarrow \text{E}$

$5101 - 1497 = \square \rightarrow \text{R}$

$11451 - 3573 = \square \rightarrow \text{D}$

Scratch space:

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

To unlock the lab security panel, the kids calculate how many missing watts are needed for full power.

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:

$27 + \underline{\quad} = 37$

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

$36 + \underline{\quad} = 40$

$28 + \underline{\quad} = 40$

$1 + \underline{\quad} = 3$

$32 + \underline{\quad} = 43$

$25 + \underline{\quad} = 32$

$28 + \underline{\quad} = 29$

$3 + \underline{\quad} = 6$

$22 + \underline{\quad} = 28$

$28 + \underline{\quad} = 33$

Step 2 - cross out the sentence with each answer:

1. The villain blasted a telepathic wave, then froze the metal handles.
2. The villain opened a glowing rift, then slowed down time.
3. The villain sparked energy bolts, then froze the metal handles.
4. The villain cast a shadow cloak, then screeched loud sonic waves.
5. The villain opened a glowing rift, then froze the metal handles.
6. The villain opened a glowing rift, then shot a laser beam.
7. The villain sparked energy bolts, then screeched loud sonic waves.
8. The villain cast a shadow cloak, then shot a laser beam.
9. The villain sent a mind pulse, then shot a laser beam.
10. The villain blasted a telepathic wave, then slowed down time.
11. The villain cast a shadow cloak, then froze the metal handles.
12. The villain opened a glowing rift, then flipped gravity upside down.

Answer Key

The Mystery of the Shadow Rift

Culprit: Joyce Byers

Mind Pulse · Laser Beam · Wears Bandana · Curly Mullet · Loud Music

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

Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT USE GRAVITY FLIP"

$4 \times 8 = 32$ (T) · $9 \times 12 = 108$ (G) · $3 \times 5 = 15$ (I) · $10 \times 3 = 30$ (A) · $7 \times 7 = 49$ (O) · $9 \times 7 = 63$ (D) · $2 \times 1 = 2$ (H) · $6 \times 7 = 42$ (L) · $9 \times 10 = 90$ (E) · $6 \times 6 = 36$ (S) · $2 \times 7 = 14$ (V) · $8 \times 8 = 64$ (U) · $4 \times 1 = 4$ (Y) · $7 \times 11 = 77$ (R) · $10 \times 7 = 70$ (F) · $7 \times 1 = 7$ (N) · $3 \times 7 = 21$ (P)

Clue 2 (Multi-step word problems): "WEARS BANDANA"

Radio Scout collected 38 cassette tapes in the morning and 46 cassette tapes in the afternoon, then split them equally among 6 Pine Valley AV Club. How many cassette tapes did each get? = 14 (W) · There were 145 flashlights in all. 37 flashlights were set aside. The rest were shared equally among 9 Pine Valley AV Club. How many flashlights did each get? = 12 (R) · Radio Scout collected 281 batteries in the morning and 49 batteries in the afternoon, then split them equally among 6 Pine Valley AV Club. How many batteries did each get? = 55 (B) · Radio Scout collected 7 cassette tapes in the morning and 57 cassette tapes in the afternoon, then split them equally among 4 Pine Valley AV Club. How many cassette tapes did each get? = 16 (E) · Radio Scout collected 18 cassette tapes in the morning and 76 cassette tapes in the afternoon, then split them equally among 2 Pine Valley AV Club. How many cassette tapes did each get? = 47 (A) · Radio Scout collected 10 batteries in the morning and 10 batteries in the afternoon, then split them equally among 2 Pine Valley AV Club. How many batteries did each get? = 10 (N) · There were 419 waffles in all. 4 Pine Valley AV Club used 38 waffles each. The other 3 Pine Valley AV Club shared the rest equally. How many waffles did each of the other Pine Valley AV Club get? = 89 (S)

Clue 3 (Word problems): "LOUD MUSIC"

Radio Scout lined up 5 rows of 4 batteries. How many batteries in all? = 20 (L) · There were 126 flashlights. 9 were used up. How many flashlights are left? = 117 (D) · Radio Scout lined up 3 rows of 6 batteries. How many batteries in all? = 18 (U) · There were 89 flashlights. 36 were used up. How many flashlights are left? = 53 (M) · Radio Scout found 12 cassette tapes yesterday and 10 more today. How many cassette tapes in all? = 22 (I) · There were 143 batteries. 24 were used up. How many batteries are left? = 119 (S) · Radio Scout found 34 cassette tapes yesterday and 48 more today. How many cassette tapes in all? = 82 (O)

Clue 4 (Subtraction): "CURLY MULLET STRANDS WERE FOUND ON THE DOOR"

$5924 - 1346 = 4578$ (C) · $5626 - 4069 = 1557$ (O) · $5008 - 2235 = 2773$ (F) · $3189 - 810 = 2379$ (L) · $5952 - 3225 = 2727$ (N) · $6608 - 3659 = 2949$ (A) · $9074 - 3882 = 5192$ (Y) · $4739 - 3729 = 1010$ (U) · $10422 - 1993 = 8429$ (S) · $6171 - 3968 = 2203$ (H) · $7481 - 3565 = 3916$ (M) · $2395 - 585 = 1810$ (W) · $13359 - 4792 = 8567$ (T) · $5859 - 2525 = 3334$ (E) · $5101 - 1497 = 3604$ (R) · $11451 - 3573 = 7878$ (D)

Clue 5 (Missing addends): surviving statement is box 9 → Joyce Byers

$27 + \underline{\quad} = 37 = 10$ · $20 + \underline{\quad} = 28 = 8$ · $36 + \underline{\quad} = 40 = 4$ · $28 + \underline{\quad} = 40 = 12$ · $1 + \underline{\quad} = 3 = 2$ · $32 + \underline{\quad} = 43 = 11$ · $25 + \underline{\quad} = 32 = 7$ · $28 + \underline{\quad} = 29 = 1$ · $3 + \underline{\quad} = 6 = 3$ · $22 + \underline{\quad} = 28 = 6$ · $28 + \underline{\quad} = 33 = 5$