



The Great Prism-Loom Sabotage

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Division · Reading level grades 7-9

Detective: _____ **Date:** _____

The eternal peace of the Prism-Paw Nebula has been shattered! Someone has scrambled the Great Prism Loom, tangling the starlight threads that hold the galaxy together. Grand Weaver Barnaby has been trapped inside a giant yarn ball, and only you can decode the cosmic logs to find the culprit.

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 Rogue Shadow-Mew is _____

Possible suspects

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

NAME	ASTRAL POWER	UNICORN GEAR	ACTIVE PAW	MANE STYLE	SECRET DISTRACTION
Lil Bub	gravity float	hoof boosters	right pawed	tinsel waves	catnip mist
Butt Stallion	star purr	glitter shield	right pawed	tinsel waves	catnip mist
Swift Wind	star purr	hoof boosters	right pawed	braided mane	crinkle foil
Sir Pounce	laser claw	feather wings	left pawed	braided mane	crinkle foil
Pusheen	yarn portal	glitter shield	left pawed	tinsel waves	crinkle foil
Starlight Glitter	gravity float	horn blaster	right pawed	braided mane	laser beams
General Buttercup	rainbow dash	horn blaster	right pawed	tinsel waves	catnip mist
Sylvester	star purr	nebula saddle	right pawed	tinsel waves	crinkle foil
Professor Purr	yarn portal	feather wings	right pawed	pink mohawk	catnip mist
Grumpy Cat	laser claw	horn blaster	left pawed	tinsel waves	catnip mist
Captain Whiskers	yarn portal	horn blaster	right pawed	tinsel waves	catnip mist
Lady Amalthea	rainbow dash	hoof boosters	right pawed	tinsel waves	laser beams
Commander Claw	star purr	feather wings	left pawed	pink mohawk	laser beams
Rarity	yarn portal	glitter shield	right pawed	tinsel waves	crinkle foil
Luna the Star-Leaper	yarn portal	glitter shield	left pawed	tinsel waves	catnip mist
Maru	rainbow dash	feather wings	right pawed	pink mohawk	laser beams
Mr Fluffington	star purr	horn blaster	left pawed	tinsel waves	catnip mist
Barnaby Sparkles	rainbow dash	nebula saddle	right pawed	tinsel waves	catnip mist
Princess Celestia	star purr	horn blaster	right pawed	pink mohawk	crinkle foil
Garfield	star purr	hoof boosters	right pawed	braided mane	catnip mist
Nebula Mew	rainbow dash	glitter shield	left pawed	braided mane	catnip mist

CLUE 1 Percentages

The ship's star-drive terminal reports that the culprit drained exactly sixty percent of the reserve fuel cells, leaving a distinct holographic trace.

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

T																	T
14	7	11	30	36	38	38	16	36	29	41	5	11	39	29	5	14	
21	36	41	11	16	29	11	19	18	38	16	39	16	41	41	38	11	

25% of 56 = → T	60% of 30 = → U	20% of 150 = → V
25% of 156 = → S	20% of 35 = → H	10% of 110 = → E
60% of 35 = → R	50% of 32 = → A	25% of 20 = → O
10% of 360 = → I	50% of 38 = → B	25% of 152 = → L
10% of 410 = → D	50% of 58 = → N	

Scratch space:

CLUE 2

Our security mainframe locked down with an encryption key that grows by powers of three; solving the base and exponent reveals the next security feed.

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

Diagram illustrating memory allocation with two rows of blocks. The top row contains 16 blocks with sizes: 256, 169, 125, 400, 16, 125, 361, 100, 36, 400, 128, 400, 196, 125, 64, 256, 128, 400, 125, 121. The bottom row contains 12 blocks with sizes: 256, 169, 125, 32, 216, 216, 32, 324, 169, 256, 196, 361, 49. In both rows, the first block and the 16th block are highlighted with an orange background and a red 'T'.

$4^4 = \square \rightarrow \text{T}$	$8^2 = \square \rightarrow \text{C}$	$2^4 = \square \rightarrow \text{N}$	$6^3 = \square \rightarrow \text{R}$
$13^2 = \square \rightarrow \text{H}$	$6^2 = \square \rightarrow \text{Y}$	$2^5 = \square \rightarrow \text{I}$	$2^7 = \square \rightarrow \text{U}$
$19^2 = \square \rightarrow \text{A}$	$5^3 = \square \rightarrow \text{E}$	$7^2 = \square \rightarrow \text{W}$	$20^2 = \square \rightarrow \text{S}$
$14^2 = \square \rightarrow \text{P}$	$18^2 = \square \rightarrow \text{G}$	$10^2 = \square \rightarrow \text{K}$	$11^2 = \square \rightarrow \text{D}$

Scratch space:

CLUE 3
Order of operations

To unlock the ancient stardust vault, you must follow the strict cosmic order of operations, solving the parentheses before multiplying the galaxy dust.

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

A									A									
77	79	31	49	42	9	49	68	79	77	39	67	50	69	38	50	22	39	
22	39	49	69	22	39	8	50	22	54	49	18	42	23					

$10 \times 10 - 23 = \square \rightarrow \text{A}$

$2 + 5 \times 4 = \square \rightarrow \text{S}$

$4 \times 10 - 9 = \square \rightarrow \text{L}$

$7 \times 9 - 24 = \square \rightarrow \text{T}$

$5 + 7 \times 9 = \square \rightarrow \text{F}$

$12 + 6 \times 5 = \square \rightarrow \text{U}$

$5 \times 11 - 6 = \square \rightarrow \text{O}$

$12 \times 4 - 10 = \square \rightarrow \text{M}$

$5 \times 4 - 12 = \square \rightarrow \text{H}$

$9 \times 9 - 27 = \square \rightarrow \text{R}$

$8 \times 11 - 9 = \square \rightarrow \text{C}$

$61 + 4 \times 2 = \square \rightarrow \text{P}$

$6 \times 12 - 22 = \square \rightarrow \text{I}$

$8 + 5 \times 3 = \square \rightarrow \text{E}$

$37 + 5 \times 6 = \square \rightarrow \text{N}$

$4 \times 12 - 30 = \square \rightarrow \text{G}$

$3 + 2 \times 3 = \square \rightarrow \text{D}$

Scratch space:

CLUE 4

Multiplication facts (1-12)

We scanned the warp corridor and found rows of glowing crystal hoofprints, organized in eight equal clusters of twelve.

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

G																		
48	66	99	35	35	100	3	64	35	99	108	7	100	66	30	40	22	100	7
90	100	63	44	3	40	35	100	35	56	100	36	66	44	44	3			

$12 \times 4 = \square \rightarrow \text{G}$

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

$8 \times 8 = \square \rightarrow \text{Y}$

$12 \times 9 = \square \rightarrow \text{N}$

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

$1 \times 7 = \square \rightarrow \text{S}$

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

$11 \times 6 = \square \rightarrow \text{L}$

$7 \times 9 = \square \rightarrow \text{C}$

$2 \times 11 = \square \rightarrow \text{V}$

$11 \times 4 = \square \rightarrow \text{O}$

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

$6 \times 6 = \square \rightarrow \text{F}$

$5 \times 6 = \square \rightarrow \text{W}$

$3 \times 1 = \square \rightarrow \text{R}$

$8 \times 7 = \square \rightarrow \text{H}$

$8 \times 5 = \square \rightarrow \text{A}$

Scratch space:

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

The stolen rainbow-yarn supply was divided equally among four distinct star-sector hiding spots, helping us pin down the precise coordinates.

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:

$28 \div 7 = \boxed{}$

$72 \div 12 = \boxed{}$

$9 \div 9 = \boxed{}$

$21 \div 3 = \boxed{}$

$6 \div 3 = \boxed{}$

$15 \div 5 = \boxed{}$

$24 \div 3 = \boxed{}$

$44 \div 4 = \boxed{}$

$48 \div 4 = \boxed{}$

$20 \div 2 = \boxed{}$

$40 \div 8 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain made a blinding rainbow dash across the deck, then shattered the lock using a horn blaster.
2. The villain fired a glowing laser claw at the warp drive, then deflected the security beams with a glitter shield.
3. The villain used a gravity float to hover over the vaults, then shattered the lock using a horn blaster.
4. The villain escaped through a swirling yarn portal, then shattered the lock using a horn blaster.
5. The villain used a gravity float to hover over the vaults, then galloped off sitting on a nebula saddle.
6. The villain emitted a soothing star purr to sleep-spell the guards, then deflected the security beams with a glitter shield.
7. The villain fired a glowing laser claw at the warp drive, then galloped off sitting on a nebula saddle.
8. The villain fired a glowing laser claw at the warp drive, then soared away on majestic feather wings.
9. The villain used a gravity float to hover over the vaults, then zoomed out of sight with hoof boosters.
10. The villain used a gravity float to hover over the vaults, then deflected the security beams with a glitter shield.
11. The villain emitted a soothing star purr to sleep-spell the guards, then shattered the lock using a horn blaster.
12. The villain emitted a soothing star purr to sleep-spell the guards, then zoomed out of sight with hoof boosters.

Answer Key

The Great Prism-Loom Sabotage

Culprit: Lil Bub

gravity float · hoof boosters · right pawed · tinsel waves · catnip mist

Trail: Start 21 → Clue 1 19 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT RIDE A NEBULA SADDLE"

25% of 56 = 14 (T) · 60% of 30 = 18 (U) · 20% of 150 = 30 (V) · 25% of 156 = 39 (S) · 20% of 35 = 7 (H) · 10% of 110 = 11 (E) · 60% of 35 = 21 (R) · 50% of 32 = 16 (A) · 25% of 20 = 5 (O) · 10% of 360 = 36 (I) · 50% of 38 = 19 (B) · 25% of 152 = 38 (L) · 10% of 410 = 41 (D) · 50% of 58 = 29 (N)

Clue 2 (Exponents): "THE SNEAKY SUSPECT USED THEIR RIGHT PAW"

$4^4 = 256$ (T) · $8^2 = 64$ (C) · $2^4 = 16$ (N) · $6^3 = 216$ (R) · $13^2 = 169$ (H) · $6^2 = 36$ (Y) · $2^5 = 32$ (I) · $2^7 = 128$ (U) · $19^2 = 361$ (A) · $5^3 = 125$ (E) · $7^2 = 49$ (W) · $20^2 = 400$ (S) · $14^2 = 196$ (P) · $18^2 = 324$ (G) · $10^2 = 100$ (K) · $11^2 = 121$ (D)

Clue 3 (Order of operations): "A CLOUD OF CATNIP MIST STOPS THIS ROGUE"

$10 \times 10 - 23 = 77$ (A) · $2 + 5 \times 4 = 22$ (S) · $4 \times 10 - 9 = 31$ (L) · $7 \times 9 - 24 = 39$ (T) · $5 + 7 \times 9 = 68$ (F) · $12 + 6 \times 5 = 42$ (U) · $5 \times 11 - 6 = 49$ (O) · $12 \times 4 - 10 = 38$ (M) · $5 \times 4 - 12 = 8$ (H) · $9 \times 9 - 27 = 54$ (R) · $8 \times 11 - 9 = 79$ (C) · $61 + 4 \times 2 = 69$ (P) · $6 \times 12 - 22 = 50$ (I) · $8 + 5 \times 3 = 23$ (E) · $37 + 5 \times 6 = 67$ (N) · $4 \times 12 - 30 = 18$ (G) · $3 + 2 \times 3 = 9$ (D)

Clue 4 (Multiplication facts (1-12)): "GLITTERY TINSEL WAVES DECORATE THE FLOOR"

$12 \times 4 = 48$ (G) · $10 \times 9 = 90$ (D) · $8 \times 8 = 64$ (Y) · $12 \times 9 = 108$ (N) · $11 \times 9 = 99$ (I) · $1 \times 7 = 7$ (S) · $5 \times 7 = 35$ (T) · $11 \times 6 = 66$ (L) · $7 \times 9 = 63$ (C) · $2 \times 11 = 22$ (V) · $11 \times 4 = 44$ (O) · $10 \times 10 = 100$ (E) · $6 \times 6 = 36$ (F) · $5 \times 6 = 30$ (W) · $3 \times 1 = 3$ (R) · $8 \times 7 = 56$ (H) · $8 \times 5 = 40$ (A)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Lil Bub

$28 \div 7 = 4$ · $72 \div 12 = 6$ · $9 \div 9 = 1$ · $21 \div 3 = 7$ · $6 \div 3 = 2$ · $15 \div 5 = 3$ · $24 \div 3 = 8$ · $44 \div 4 = 11$ · $48 \div 4 = 12$ · $20 \div 2 = 10$ · $40 \div 8 = 5$