



The Case of the Missing Cloud Compass

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

Detective: _____ Date: _____

Someone snagged the Chief Navigator golden Cloud Compass right before the Airship Stratos took off! Detective, solve the math clues to uncover the culprit before we land.

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 Sky Pirate is _____

Possible suspects

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

NAME	GEAR	TOOL	DOMINANT HAND	HAIR STYLE	WEAKNESS
Medic Kiki	Smoke Bombs	Brass Whistle	Right Handed	Spiky Silver Hair	Sneeze Powder
Helmsman Leo	Glider Wings	Compass Ring	Right Handed	Braided Brown Hair	Bright Flashlight
Runner Nico	Wind Cannon	Spyglass	Left Handed	Spiky Silver Hair	Sneeze Powder
Pilot Barnaby	Glider Wings	Spyglass	Right Handed	Spiky Silver Hair	Loud Alarm
Navigator Grace	Glider Wings	Signal Torch	Right Handed	Curly Red Hair	Sneeze Powder
Lookout Jasper	Glider Wings	Brass Whistle	Left Handed	Curly Red Hair	Bright Flashlight
Scout Cora	Grappling Hook	Brass Whistle	Right Handed	Spiky Silver Hair	Sneeze Powder
Sailor Ella	Wind Cannon	Signal Torch	Left Handed	Spiky Silver Hair	Bright Flashlight
Radar Pete	Smoke Bombs	Spyglass	Left Handed	Spiky Silver Hair	Bright Flashlight
Gunner Finn	Grappling Hook	Map Scroll	Right Handed	Braided Brown Hair	Bright Flashlight
Builder Opal	Grappling Hook	Map Scroll	Left Handed	Braided Brown Hair	Loud Alarm
Officer Xena	Grappling Hook	Brass Whistle	Left Handed	Braided Brown Hair	Bright Flashlight
Rover Rita	Smoke Bombs	Signal Torch	Right Handed	Spiky Silver Hair	Sneeze Powder
Cadet Iris	Wind Cannon	Map Scroll	Right Handed	Curly Red Hair	Sneeze Powder
Officer Hugo	Smoke Bombs	Brass Whistle	Left Handed	Spiky Silver Hair	Sneeze Powder
Captain Avery	Glider Wings	Brass Whistle	Left Handed	Curly Red Hair	Sneeze Powder
Cadet Uri	Jet Pack	Spyglass	Left Handed	Spiky Silver Hair	Loud Alarm
Sailor Sam	Smoke Bombs	Brass Whistle	Left Handed	Spiky Silver Hair	Bright Flashlight
Sparky Quinn	Glider Wings	Spyglass	Right Handed	Spiky Silver Hair	Sneeze Powder
Mechanic Mia	Jet Pack	Map Scroll	Right Handed	Curly Red Hair	Bright Flashlight
Scout Will	Smoke Bombs	Map Scroll	Right Handed	Spiky Silver Hair	Sneeze Powder

CLUE 1 Percentages

The airship security sensor only displays battery power in percentages. Calculate the level to decode the first clue!

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

T																	T
26	1	18	31	43	23	23	38	43	14	19	45	18	27	14	45	26	
34	38	28	28	3	38	4	38	44	27	34	28	45	23	23			

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

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

$5\% \text{ of } 380 = \boxed{} \rightarrow \boxed{\text{D}}$

$5\% \text{ of } 280 = \boxed{} \rightarrow \boxed{\text{N}}$

$5\% \text{ of } 620 = \boxed{} \rightarrow \boxed{\text{V}}$

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

$10\% \text{ of } 280 = \boxed{} \rightarrow \boxed{\text{R}}$

$20\% \text{ of } 5 = \boxed{} \rightarrow \boxed{\text{H}}$

$5\% \text{ of } 900 = \boxed{} \rightarrow \boxed{\text{O}}$

$5\% \text{ of } 860 = \boxed{} \rightarrow \boxed{\text{I}}$

$50\% \text{ of } 88 = \boxed{} \rightarrow \boxed{\text{P}}$

$25\% \text{ of } 92 = \boxed{} \rightarrow \boxed{\text{L}}$

$25\% \text{ of } 72 = \boxed{} \rightarrow \boxed{\text{E}}$

$10\% \text{ of } 270 = \boxed{} \rightarrow \boxed{\text{S}}$

$5\% \text{ of } 60 = \boxed{} \rightarrow \boxed{\text{Y}}$

$50\% \text{ of } 8 = \boxed{} \rightarrow \boxed{\text{M}}$

Scratch space:

CLUE 2 Exponents

The engine power grid uses squared and cubed numbers on the display panel. Solve the exponents to unlock the second clue!

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

T										T				T	
400	225	27	125	128	125	36	27	100	400	361	27	243	400	9	

				T											T
25	196	64	225	400	225	9	8	144	27	144	36	25	196	8	400

$20^2 = \square \rightarrow$ T	$4^3 = \square \rightarrow$ G	$15^2 = \square \rightarrow$ H	$2^3 = \square \rightarrow$ N
$2^7 = \square \rightarrow$ U	$14^2 = \square \rightarrow$ I	$3^5 = \square \rightarrow$ F	$3^2 = \square \rightarrow$ A
$12^2 = \square \rightarrow$ D	$5^3 = \square \rightarrow$ S	$10^2 = \square \rightarrow$ C	$6^2 = \square \rightarrow$ P
$3^3 = \square \rightarrow$ E	$19^2 = \square \rightarrow$ L	$5^2 = \square \rightarrow$ R	

Scratch space:

CLUE 3
Order of operations

The navigator left a coded logbook with parenthesized calculations to lock the locker. Evaluate it in order to reveal the third clue!

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

T																			
30	80	36	75	60	36	36	40	36	27	64	73	16	36	67	57	35	16	36	

T															
30	80	36	61	37	55	55	35	37	60	75	60	36	36	40	36

$18 + 4 \times 3 = \square \rightarrow$ T	$40 + 8 \times 3 = \square \rightarrow$ O	$12 \times 6 - 12 = \square \rightarrow$ N
$6 + 5 \times 6 = \square \rightarrow$ E	$15 + 5 \times 4 = \square \rightarrow$ A	$6 \times 7 - 2 = \square \rightarrow$ Z
$41 + 8 \times 2 = \square \rightarrow$ M	$37 + 6 \times 4 = \square \rightarrow$ V	$8 \times 8 - 9 = \square \rightarrow$ L
$19 + 8 \times 6 = \square \rightarrow$ R	$62 + 3 \times 6 = \square \rightarrow$ H	$37 + 4 \times 9 = \square \rightarrow$ W
$12 + 3 \times 5 = \square \rightarrow$ P	$5 \times 9 - 29 = \square \rightarrow$ D	$63 + 3 \times 4 = \square \rightarrow$ S
$10 + 3 \times 9 = \square \rightarrow$ I		

Scratch space:

CLUE 4
Multiplication facts (1-12)

The supply crate list counts cargo by multiplying equal rows of gear boxes. Multiply the totals to find the fourth clue!

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

W																	
9	2	1	56	4	44	110	36	6	96	63	70	36	96	28	80	2	81
88	15	96	81	15	11	11	88	2	36	144	2	44	2				

$1 \times 9 = \square \rightarrow \text{W}$

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

$1 \times 1 = \square \rightarrow \text{F}$

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

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

$8 \times 12 = \square \rightarrow \text{I}$

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

$4 \times 7 = \square \rightarrow \text{L}$

$8 \times 11 = \square \rightarrow \text{H}$

$3 \times 12 = \square \rightarrow \text{S}$

$12 \times 12 = \square \rightarrow \text{C}$

$11 \times 10 = \square \rightarrow \text{D}$

$8 \times 10 = \square \rightarrow \text{V}$

$1 \times 11 = \square \rightarrow \text{T}$

$1 \times 2 = \square \rightarrow \text{E}$

$3 \times 5 = \square \rightarrow \text{A}$

$2 \times 2 = \square \rightarrow \text{U}$

$7 \times 10 = \square \rightarrow \text{Y}$

$1 \times 6 = \square \rightarrow \text{P}$

Scratch space:

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

The flight crew needs to split energy rations equally among the deck rooms. Divide the total units to get the final clue!

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:

$81 \div 9 = \boxed{}$

$28 \div 4 = \boxed{}$

$100 \div 10 = \boxed{}$

$6 \div 2 = \boxed{}$

$4 \div 1 = \boxed{}$

$18 \div 9 = \boxed{}$

$5 \div 1 = \boxed{}$

$66 \div 11 = \boxed{}$

$22 \div 2 = \boxed{}$

$132 \div 11 = \boxed{}$

$7 \div 7 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain swung with a grappling hook, then lit a signal torch.
2. The villain dropped smoke bombs, then unrolled a map scroll.
3. The villain swung with a grappling hook, then unrolled a map scroll.
4. The villain swung with a grappling hook, then scouted with a spyglass.
5. The villain flew with glider wings, then blew a brass whistle.
6. The villain blasted a jet pack, then scouted with a spyglass.
7. The villain swung with a grappling hook, then blew a brass whistle.
8. The villain dropped smoke bombs, then lit a signal torch.
9. The villain flew with glider wings, then scouted with a spyglass.
10. The villain dropped smoke bombs, then blew a brass whistle.
11. The villain swung with a grappling hook, then flashed a compass ring.
12. The villain blasted a jet pack, then blew a brass whistle.

Answer Key

The Case of the Missing Cloud Compass

Culprit: Rover Rita

Smoke Bombs · Signal Torch · Right Handed · Spiky Silver Hair · Sneeze Powder

Trail: Start 21 → Clue 1 16 → Clue 2 7 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT CARRY A MAP SCROLL"

5% of 520 = 26 (T) · 25% of 152 = 38 (A) · 5% of 380 = 19 (D) · 5% of 280 = 14 (N) · 5% of 620 = 31 (V) · 5% of 680 = 34 (C) · 10% of 280 = 28 (R) · 20% of 5 = 1 (H) · 5% of 900 = 45 (O) · 5% of 860 = 43 (I) · 50% of 88 = 44 (P) · 25% of 92 = 23 (L) · 25% of 72 = 18 (E) · 10% of 270 = 27 (S) · 5% of 60 = 3 (Y) · 50% of 8 = 4 (M)

Clue 2 (Exponents): "THE SUSPECT LEFT A RIGHT HANDED PRINT"

$20^2 = 400$ (T) · $4^3 = 64$ (G) · $15^2 = 225$ (H) · $2^3 = 8$ (N) · $2^7 = 128$ (U) · $14^2 = 196$ (I) · $3^5 = 243$ (F) · $3^2 = 9$ (A) · $12^2 = 144$ (D) · $5^3 = 125$ (S) · $10^2 = 100$ (C) · $6^2 = 36$ (P) · $3^3 = 27$ (E) · $19^2 = 361$ (L) · $5^2 = 25$ (R)

Clue 3 (Order of operations): "THE SNEEZE POWDER MADE THE VILLAIN SNEEZE"

$18 + 4 \times 3 = 30$ (T) · $40 + 8 \times 3 = 64$ (O) · $12 \times 6 - 12 = 60$ (N) · $6 + 5 \times 6 = 36$ (E) · $15 + 5 \times 4 = 35$ (A) · $6 \times 7 - 2 = 40$ (Z) · $41 + 8 \times 2 = 57$ (M) · $37 + 6 \times 4 = 61$ (V) · $8 \times 8 - 9 = 55$ (L) · $19 + 8 \times 6 = 67$ (R) · $62 + 3 \times 6 = 80$ (H) · $37 + 4 \times 9 = 73$ (W) · $12 + 3 \times 5 = 27$ (P) · $5 \times 9 - 29 = 16$ (D) · $63 + 3 \times 4 = 75$ (S) · $10 + 3 \times 9 = 37$ (I)

Clue 4 (Multiplication facts (1-12)): "WE FOUND SPIKY SILVER HAIR AT THE SCENE"

$1 \times 9 = 9$ (W) · $9 \times 9 = 81$ (R) · $1 \times 1 = 1$ (F) · $7 \times 8 = 56$ (O) · $9 \times 7 = 63$ (K) · $8 \times 12 = 96$ (I) · $11 \times 4 = 44$ (N) · $4 \times 7 = 28$ (L) · $8 \times 11 = 88$ (H) · $3 \times 12 = 36$ (S) · $12 \times 12 = 144$ (C) · $11 \times 10 = 110$ (D) · $8 \times 10 = 80$ (V) · $1 \times 11 = 11$ (T) · $1 \times 2 = 2$ (E) · $3 \times 5 = 15$ (A) · $2 \times 2 = 4$ (U) · $7 \times 10 = 70$ (Y) · $1 \times 6 = 6$ (P)

Clue 5 (Division facts (1-12)): surviving statement is box 8 → Rover Rita

$81 \div 9 = 9$ · $28 \div 4 = 7$ · $100 \div 10 = 10$ · $6 \div 2 = 3$ · $4 \div 1 = 4$ · $18 \div 9 = 2$ · $5 \div 1 = 5$ · $66 \div 11 = 6$ · $22 \div 2 = 11$ · $132 \div 11 = 12$ · $7 \div 7 = 1$