



The Chase Across the Cloud Islands

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 5-6

Detective: _____ **Date:** _____

The golden Compass of Winds has been stolen from the Grand Observatory! A Rogue Sky Captain bypassed the cloud guards and flew off into the sky island archipelago. As the lead Cloud Cadet, you must track down the thief before they navigate to the lost Temple of Storms.

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 Sky Captain is _____

Possible suspects

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

NAME	PRIMARY AIRSHIP GEAR	SECONDARY ESCAPE TOOL	GOGGLE POSITION	HAIR STYLE	ARCHIPELAGO FEAR
Captain Cooper	grapple harpoon	flare launcher	wears goggles on forehead	braided blue hair	dislikes strong winds
Captain Barnaby	stealth sails	flare launcher	wears goggles on neck	spiky red hair	allergic to sky pollen
Bobby Breeze	stealth sails	glider wings	wears goggles on neck	windswept silver hair	afraid of heights
Skye Jackson	cloud camouflage	glider wings	wears goggles on neck	windswept silver hair	afraid of heights
Lucky Luke	cloud camouflage	glider wings	wears goggles on forehead	spiky red hair	dislikes strong winds
Aviator Al	cloud camouflage	solar panels	wears goggles on neck	windswept silver hair	dislikes strong winds
Breezy Bella	turbo thrusters	sonic siren	wears goggles on neck	braided blue hair	dislikes strong winds
Vicky Vapor	grapple harpoon	glider wings	wears goggles on neck	spiky red hair	dislikes strong winds
Penny Piper	magnet anchor	flare launcher	wears goggles on neck	windswept silver hair	dislikes strong winds
Stormy Sam	grapple harpoon	glider wings	wears goggles on neck	spiky red hair	allergic to sky pollen
Rusty Rick	cloud camouflage	smoke canister	wears goggles on neck	windswept silver hair	dislikes strong winds
Cloudy Chloe	grapple harpoon	smoke canister	wears goggles on neck	windswept silver hair	dislikes strong winds
Skyler Stark	grapple harpoon	glider wings	wears goggles on forehead	windswept silver hair	afraid of heights
Jet Jaxon	cloud camouflage	solar panels	wears goggles on forehead	windswept silver hair	allergic to sky pollen
Sally Stratos	grapple harpoon	solar panels	wears goggles on neck	braided blue hair	afraid of heights
Leo Loft	stealth sails	flare launcher	wears goggles on forehead	braided blue hair	allergic to sky pollen
Dash Dawson	magnet anchor	smoke canister	wears goggles on forehead	braided blue hair	afraid of heights
Zephyr Zach	stealth sails	glider wings	wears goggles on neck	braided blue hair	afraid of heights
Hazel Horizon	stealth sails	smoke canister	wears goggles on neck	windswept silver hair	dislikes strong winds
Navigator Nora	grapple harpoon	smoke canister	wears goggles on forehead	windswept silver hair	dislikes strong winds
Pilot Pete	magnet anchor	sonic siren	wears goggles on neck	spiky red hair	allergic to sky pollen

CLUE 1 Integers

Your altimeter fluctuates as you dive through the clouds. Calculate the net change in altitude to locate the rogue ship's flight path.

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

T			T											T			
12	24	17	12	24	5	17	3	19	8	17	28	15	8	12	18	28	17
28	8	11	27	20	2	27	15	17	11	28							

$$(-3) + 15 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$16 - (-4) = \boxed{} \rightarrow \boxed{\text{R}}$$

$$(-6) + 34 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$7 - (-8) = \boxed{} \rightarrow \boxed{\text{N}}$$

$$(-9) + 17 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$16 - (-8) = \boxed{} \rightarrow \boxed{\text{H}}$$

$$(-4) + 15 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$16 - (-1) = \boxed{} \rightarrow \boxed{\text{E}}$$

$$14 - (-5) = \boxed{} \rightarrow \boxed{\text{D}}$$

$$10 - (-8) = \boxed{} \rightarrow \boxed{\text{U}}$$

$$(-3) + 30 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$(-11) + 16 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$(-7) + 10 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$(-5) + 7 = \boxed{} \rightarrow \boxed{\text{P}}$$

Scratch space:

CLUE 2 Percentages

The sky docks track the percentage of energy left in each vessel's batteries. Solve the percentages to see which gate the suspect used.

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

T										T					
49	37	54	51	41	51	9	54	4	49	13	54	54	9	51	
38	3	38	38	5	54	51	3	52	52	54	4	13			

$25\% \text{ of } 196 = \square \rightarrow \boxed{\text{T}}$

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

$25\% \text{ of } 204 = \square \rightarrow \boxed{\text{S}}$

$20\% \text{ of } 25 = \square \rightarrow \boxed{\text{L}}$

$25\% \text{ of } 164 = \square \rightarrow \boxed{\text{U}}$

$10\% \text{ of } 540 = \square \rightarrow \boxed{\text{E}}$

$25\% \text{ of } 52 = \square \rightarrow \boxed{\text{K}}$

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

$40\% \text{ of } 130 = \square \rightarrow \boxed{\text{N}}$

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

$25\% \text{ of } 36 = \square \rightarrow \boxed{\text{P}}$

$5\% \text{ of } 760 = \square \rightarrow \boxed{\text{G}}$

Scratch space:

CLUE 3
Order of operations

To open a locked supply crate dropped by the thief, you must follow the correct order of operations on the brass dials.

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

V								V									
48	98	35	35	32	98	49	32	48	77	98	31	118	80	120	29		
120	8	51	51	98	68	32	49	29	43	32	80	120	118				

$30 + 2 \times 9 = \square \rightarrow \text{V}$

$86 + 8 \times 4 = \square \rightarrow \text{S}$

$10 \times 6 - 28 = \square \rightarrow \text{A}$

$11 \times 9 - 19 = \square \rightarrow \text{T}$

$10 \times 10 - 2 = \square \rightarrow \text{I}$

$11 + 5 \times 8 = \square \rightarrow \text{R}$

$12 \times 11 - 12 = \square \rightarrow \text{H}$

$1 + 6 \times 7 = \square \rightarrow \text{P}$

$2 \times 12 - 16 = \square \rightarrow \text{U}$

$9 \times 11 - 22 = \square \rightarrow \text{O}$

$47 + 3 \times 7 = \square \rightarrow \text{C}$

$41 + 4 \times 2 = \square \rightarrow \text{N}$

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

$17 + 7 \times 2 = \square \rightarrow \text{D}$

$4 \times 9 - 7 = \square \rightarrow \text{E}$

Scratch space:

CLUE 4 Exponents

The tracker signal amplifies with every floating island we pass. Use exponents to find the exact frequency of the thief's radio.

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

S																			
64	169	361	125	216	49	256	121	361	121	289	49	216	243	36	169	9	243	100	

						S					
81	225	169	49	36	225	64	25	121	289	9	243

$8^2 = \square \rightarrow$ S	$13^2 = \square \rightarrow$ I	$3^2 = \square \rightarrow$ N	$15^2 = \square \rightarrow$ A
$6^3 = \square \rightarrow$ E	$11^2 = \square \rightarrow$ O	$16^2 = \square \rightarrow$ C	$3^5 = \square \rightarrow$ D
$9^2 = \square \rightarrow$ H	$5^2 = \square \rightarrow$ F	$10^2 = \square \rightarrow$ Y	$17^2 = \square \rightarrow$ U
$6^2 = \square \rightarrow$ W	$19^2 = \square \rightarrow$ L	$7^2 = \square \rightarrow$ R	$5^3 = \square \rightarrow$ V

Scratch space:

CLUE 5**Two-step equations - the last clue**

Your steam engine pressure drops. Solve these two-step equations to balance the valves and catch up to the rogue captain.

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:

$5x + 3 = 23, x = \boxed{}$

$3x + 8 = 11, x = \boxed{}$

$2x + 2 = 8, x = \boxed{}$

$6x + 2 = 56, x = \boxed{}$

$3x + 3 = 27, x = \boxed{}$

$6x + 5 = 17, x = \boxed{}$

$4x + 2 = 22, x = \boxed{}$

$6x + 3 = 69, x = \boxed{}$

$6x + 7 = 43, x = \boxed{}$

$3x + 11 = 32, x = \boxed{}$

$4x + 6 = 46, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain blends into a puffy storm cloud, then releases a thick purple smoke screen.
2. The villain speeds past the cloud gates, then shoots a bright neon distress flare.
3. The villain drops a heavy magnet anchor, then shoots a bright neon distress flare.
4. The villain deploys the stealth sail system, then releases a thick purple smoke screen.
5. The villain deploys the stealth sail system, then unfolds a pair of sleek glider wings.
6. The villain fires a glowing grapple line, then shoots a bright neon distress flare.
7. The villain fires a glowing grapple line, then activates a loud sonic siren blast.
8. The villain deploys the stealth sail system, then unfolds high tech glowing solar panels.
9. The villain fires a glowing grapple line, then unfolds a pair of sleek glider wings.
10. The villain speeds past the cloud gates, then unfolds high tech glowing solar panels.
11. The villain drops a heavy magnet anchor, then activates a loud sonic siren blast.
12. The villain fires a glowing grapple line, then releases a thick purple smoke screen.

Answer Key

The Chase Across the Cloud Islands

Culprit: Cloudy Chloe

grapple harpoon · smoke canister · wears goggles on neck · windswept silver hair · dislikes strong winds

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE THIEF DOES NOT USE SOLAR PANELS"

$(-3) + 15 = 12$ (T) · $16 - (-4) = 20$ (R) · $(-6) + 34 = 28$ (S) · $7 - (-8) = 15$ (N) · $(-9) + 17 = 8$ (O) · $16 - (-8) = 24$ (H) · $(-4) + 15 = 11$ (L) · $16 - (-1) = 17$ (E) · $14 - (-5) = 19$ (D) · $10 - (-8) = 18$ (U) · $(-3) + 30 = 27$ (A) · $(-11) + 16 = 5$ (I) · $(-7) + 10 = 3$ (F) · $(-5) + 7 = 2$ (P)

Clue 2 (Percentages): "THE SUSPECT KEEPS GOGGLES ON NECK"

25% of 196 = 49 (T) · 5% of 740 = 37 (H) · 25% of 204 = 51 (S) · 20% of 25 = 5 (L) · 25% of 164 = 41 (U) · 10% of 540 = 54 (E) · 25% of 52 = 13 (K) · 25% of 12 = 3 (O) · 40% of 130 = 52 (N) · 50% of 8 = 4 (C) · 25% of 36 = 9 (P) · 5% of 760 = 38 (G)

Clue 3 (Order of operations): "VILLAIN AVOIDS THE HURRICANE PATHS"

$30 + 2 \times 9 = 48$ (V) · $86 + 8 \times 4 = 118$ (S) · $10 \times 6 - 28 = 32$ (A) · $11 \times 9 - 19 = 80$ (T) · $10 \times 10 - 2 = 98$ (I) · $11 + 5 \times 8 = 51$ (R) · $12 \times 11 - 12 = 120$ (H) · $1 + 6 \times 7 = 43$ (P) · $2 \times 12 - 16 = 8$ (U) · $9 \times 11 - 22 = 77$ (O) · $47 + 3 \times 7 = 68$ (C) · $41 + 4 \times 2 = 49$ (N) · $7 + 4 \times 7 = 35$ (L) · $17 + 7 \times 2 = 31$ (D) · $4 \times 9 - 7 = 29$ (E)

Clue 4 (Exponents): "SILVER COLOURED WINDY HAIR WAS FOUND"

$8^2 = 64$ (S) · $13^2 = 169$ (I) · $3^2 = 9$ (N) · $15^2 = 225$ (A) · $6^3 = 216$ (E) · $11^2 = 121$ (O) · $16^2 = 256$ (C) · $3^5 = 243$ (D) · $9^2 = 81$ (H) · $5^2 = 25$ (F) · $10^2 = 100$ (Y) · $17^2 = 289$ (U) · $6^2 = 36$ (W) · $19^2 = 361$ (L) · $7^2 = 49$ (R) · $5^3 = 125$ (V)

Clue 5 (Two-step equations): surviving statement is box 12 → Cloudy Chloe

$5x + 3 = 23, x = 4$ · $3x + 8 = 11, x = 1$ · $2x + 2 = 8, x = 3$ · $6x + 2 = 56, x = 9$ · $3x + 3 = 27, x = 8$ · $6x + 5 = 17, x = 2$ · $4x + 2 = 22, x = 5$ · $6x + 3 = 69, x = 11$ · $6x + 7 = 43, x = 6$ · $3x + 11 = 32, x = 7$ · $4x + 6 = 46, x = 10$