



The Airship Academy Mystery

Grade 7 math · Integers, Word problems, Multi-step word problems, Percentages, Two-step equations · Reading level grades 5-6

Detective: _____ Date: _____

Someone has stolen the Golden Chronometer from the Zephyr Bay Flight Academy! The thief flew off into the mist. You must analyze the evidence left behind to find out which young pilot is the bandit.

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 Cloud Bandit is _____

Possible suspects

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

NAME	PRIMARY PILOT TOOL	BACKUP GADGET	TELESCOPE EYE PREFERENCE	HELMET PLUME COLOR	AVIATION DISTRACTION
Charles	magnetic rope dart	sonar map pad	right-eye viewer	indigo pilot plume	ticking pocketwatches
Finn	steam-powered glider	miniature repair wrench	right-eye viewer	crimson pilot plume	ticking pocketwatches
Valerie	steam-powered glider	sonar map pad	left-eye viewer	emerald pilot plume	gusty thunderclouds
Sally	magnetic rope dart	auto-writing logbook	right-eye viewer	emerald pilot plume	gusty thunderclouds
Buzz	smoke-bomb launcher	auto-writing logbook	left-eye viewer	emerald pilot plume	gusty thunderclouds
Mae	magnetic rope dart	sonar map pad	right-eye viewer	crimson pilot plume	gusty thunderclouds
Leo	steam-powered glider	auto-writing logbook	left-eye viewer	emerald pilot plume	ticking pocketwatches
Bessie	steam-powered glider	pocket wind-gauge	right-eye viewer	emerald pilot plume	ticking pocketwatches
Piper	magnetic rope dart	flare signaling pistol	right-eye viewer	emerald pilot plume	bright flashing beacons
Jade	high-beam searchlight	auto-writing logbook	right-eye viewer	emerald pilot plume	ticking pocketwatches
Wilbur	brass grappling hook	flare signaling pistol	right-eye viewer	emerald pilot plume	ticking pocketwatches
Miles	high-beam searchlight	pocket wind-gauge	right-eye viewer	emerald pilot plume	bright flashing beacons
Otis	brass grappling hook	miniature repair wrench	right-eye viewer	emerald pilot plume	ticking pocketwatches
Hazel	smoke-bomb launcher	auto-writing logbook	right-eye viewer	indigo pilot plume	bright flashing beacons
Max	high-beam searchlight	pocket wind-gauge	left-eye viewer	emerald pilot plume	ticking pocketwatches
Orville	steam-powered glider	auto-writing logbook	right-eye viewer	indigo pilot plume	ticking pocketwatches
Sky	high-beam searchlight	pocket wind-gauge	right-eye viewer	crimson pilot plume	gusty thunderclouds
Jax	magnetic rope dart	sonar map pad	left-eye viewer	crimson pilot plume	ticking pocketwatches
Zara	magnetic rope dart	sonar map pad	left-eye viewer	emerald pilot plume	bright flashing beacons
Neil	magnetic rope dart	sonar map pad	right-eye viewer	indigo pilot plume	bright flashing beacons
Amelia	high-beam searchlight	pocket wind-gauge	right-eye viewer	emerald pilot plume	ticking pocketwatches

CLUE 1 Integers

We head to the sky-docks to calculate fuel consumption. By tracking how many canisters each pilot loaded, spilled, and burned during training, we can rule out pilots with the wrong equipment.

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

29 24 5 23 4 6 10 12 29 10 13 5 28 6 13 29 18 28 5

4 8 12 6 12 4 29 18 11 5 9 11 5 6 20 24

$$(-1) + 30 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$(-14) + 27 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$(-2) + 20 = \boxed{} \rightarrow \boxed{\mathbf{U}}$$

$$2 - (-9) = \boxed{} \rightarrow \boxed{\text{R}}$$

$$(-14) + 20 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$(-2) + 12 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$(-6) + 15 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$$6 - (-2) = \boxed{} \rightarrow \boxed{\mathbf{M}}$$

$$(-10) + 15 = \boxed{} \rightarrow \boxed{\mathbf{E}}$$

$$(-5) + 17 = \boxed{} \rightarrow \boxed{1}$$

$$22 - (-6) = \boxed{} \rightarrow \boxed{\text{S}}$$

$$(-15) + 19 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$(-2) + 22 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$(-3) + 26 = \boxed{} \rightarrow \boxed{\mathbf{B}}$$

$$(-3) + 27 = \boxed{} \rightarrow \boxed{\text{H}}$$

Scratch space:

CLUE 3

Multi-step word problems

Our altitude trackers recorded the bandit's flight path as they rose above cloud level and dipped into deep canyons. Solving these elevation shifts reveals the suspect's exact sightline.

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

Someone scared the villain off with

T								O			E	T	W	A	T		H	E	S
71	37	8	28	37	73	58	16		8	28	71		71	8					

Flight instructor collected 298 altimeter in the morning and 128 altimeter in the afternoon, then split them equally among 6 cloud patrol. How many altimeter did each get?

Answer: → **T**

Flight instructor collected 6 propeller in the morning and 26 propeller in the afternoon, then split them equally among 2 cloud patrol. How many propeller did each get?

Answer: → **P**

There were 306 altimeter in all. 1 cloud patrol used 16 altimeter each. The other 5 cloud patrol shared the rest equally. How many altimeter did each of the other cloud patrol get?

Answer: → **G**

There were 148 air-map in all. 1 cloud patrol used 36 air-map each. The other 4 cloud patrol shared the rest equally. How many air-map did each of the other cloud patrol get?

Answer: → **K**

Flight instructor filled 3 boxes with 3 air-map each, then found 64 more air-map. How many air-map are there in all?

Answer: → **N**

Flight instructor earned 5 parachute in each of 2 rounds, plus 12 bonus parachute. Then 14 parachute were lost. How many parachute are left?

Answer: → **C**

Flight instructor collected 40 air-map in the morning and 108 air-map in the afternoon, then split them equally among 4 cloud patrol. How many air-map did each get?

Answer: → **I**

Scratch space:

CLUE 4 Percentages

The escape glider left behind a battery cell that is only partially drained. Calculating the exact battery percentage remaining will point us toward the suspect's greatest weakness.

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

G																	
31	51	5	5	13	37	5	53	18	5	55	41	40	52	52	35	21	30
41	16	40	13	45	16	13	55	37	5	9	51	21	55	5			

$50\% \text{ of } 62 = \square \rightarrow \boxed{\text{G}}$

$5\% \text{ of } 700 = \square \rightarrow \boxed{\text{W}}$

$75\% \text{ of } 60 = \square \rightarrow \boxed{\text{D}}$

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

$20\% \text{ of } 45 = \square \rightarrow \boxed{\text{C}}$

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

$20\% \text{ of } 255 = \square \rightarrow \boxed{\text{R}}$

$25\% \text{ of } 84 = \square \rightarrow \boxed{\text{A}}$

$25\% \text{ of } 212 = \square \rightarrow \boxed{\text{L}}$

$5\% \text{ of } 320 = \square \rightarrow \boxed{\text{O}}$

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

$50\% \text{ of } 110 = \square \rightarrow \boxed{\text{T}}$

$10\% \text{ of } 400 = \square \rightarrow \boxed{\text{U}}$

$20\% \text{ of } 90 = \square \rightarrow \boxed{\text{M}}$

$20\% \text{ of } 150 = \square \rightarrow \boxed{\text{S}}$

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

$5\% \text{ of } 820 = \square \rightarrow \boxed{\text{F}}$

Scratch space:

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

We find a tangled trail of dropped cargo scales in the forest below. Solving for the unknown weight of the glider's ballast tells us what color plume fell from the bandit's helmet.

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:

$4x + 6 = 14, x = \boxed{}$

$3x + 7 = 10, x = \boxed{}$

$5x + 4 = 44, x = \boxed{}$

$5x + 3 = 33, x = \boxed{}$

$2x + 11 = 35, x = \boxed{}$

$4x + 1 = 45, x = \boxed{}$

$2x + 9 = 23, x = \boxed{}$

$3x + 8 = 35, x = \boxed{}$

$6x + 7 = 31, x = \boxed{}$

$2x + 2 = 12, x = \boxed{}$

$2x + 4 = 10, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain swung across the hangar with a brass grappling hook, then alerted hidden co-conspirators using a flare signaling pistol.
2. The villain soared over the guard towers in a steam-powered glider, then checked the breeze with a pocket wind-gauge.
3. The villain blinded the night watchman with a high-beam searchlight, then tightened a loose wing bolt with a miniature repair wrench.
4. The villain blinded the night watchman with a high-beam searchlight, then alerted hidden co-conspirators using a flare signaling pistol.
5. The villain swung across the hangar with a brass grappling hook, then tightened a loose wing bolt with a miniature repair wrench.
6. The villain blinded the night watchman with a high-beam searchlight, then plotted a swift escape route on a sonar map pad.
7. The villain shrouded the entire launchpad with a smoke-bomb launcher, then plotted a swift escape route on a sonar map pad.
8. The villain blinded the night watchman with a high-beam searchlight, then recorded the escape speed in an auto-writing logbook.
9. The villain soared over the guard towers in a steam-powered glider, then alerted hidden co-conspirators using a flare signaling pistol.
10. The villain blinded the night watchman with a high-beam searchlight, then checked the breeze with a pocket wind-gauge.
11. The villain shrouded the entire launchpad with a smoke-bomb launcher, then tightened a loose wing bolt with a miniature repair wrench.
12. The villain swung across the hangar with a brass grappling hook, then recorded the escape speed in an auto-writing logbook.

Answer Key

The Airship Academy Mystery

Culprit: Amelia

high-beam searchlight · pocket wind-gauge · right-eye viewer · emerald pilot plume · ticking pocketwatches

Trail: Start 21 → Clue 1 19 → Clue 2 13 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE BANDIT DOES NOT USE A MINIATURE WRENCH"

$(-1) + 30 = 29$ (T) · $(-14) + 27 = 13$ (O) · $(-2) + 20 = 18$ (U) · $2 - (-9) = 11$ (R) · $(-14) + 20 = 6$ (N) · $(-2) + 12 = 10$ (D) · $(-6) + 15 = 9$ (W) · $6 - (-2) = 8$ (M) · $(-10) + 15 = 5$ (E) · $(-5) + 17 = 12$ (I) · $22 - (-6) = 28$ (S) · $(-15) + 19 = 4$ (A) · $(-2) + 22 = 20$ (C) · $(-3) + 26 = 23$ (B) · $(-3) + 27 = 24$ (H)

Clue 2 (Word problems): "RIGHT EYE VIEWER"

Flight instructor found 22 parachute yesterday and 46 more today. How many parachute in all? = 68 (R) · Flight instructor found 78 goggles yesterday and 4 more today. How many goggles in all? = 82 (G) · Flight instructor found 5 parachute yesterday and 8 more today. How many parachute in all? = 13 (T) · There were 118 goggles. 13 were used up. How many goggles are left? = 105 (Y) · Flight instructor found 99 goggles yesterday and 13 more today. How many goggles in all? = 112 (E) · There were 74 altimeter. 4 were used up. How many altimeter are left? = 70 (I) · Flight instructor found 17 altimeter yesterday and 52 more today. How many altimeter in all? = 69 (H)

Clue 3 (Multi-step word problems): "TICKING POCKETWATCHES"

Flight instructor collected 298 altimeter in the morning and 128 altimeter in the afternoon, then split them equally among 6 cloud patrol. How many altimeter did each get? = 71 (T) · Flight instructor collected 6 propeller in the morning and 26 propeller in the afternoon, then split them equally among 2 cloud patrol. How many propeller did each get? = 16 (P) · There were 306 altimeter in all. 1 cloud patrol used 16 altimeter each. The other 5 cloud patrol shared the rest equally. How many altimeter did each of the other cloud patrol get? = 58 (G) · There were 148 air-map in all. 1 cloud patrol used 36 air-map each. The other 4 cloud patrol shared the rest equally. How many air-map did each of the other cloud patrol get? = 28 (K) · Flight instructor filled 3 boxes with 3 air-map each, then found 64 more air-map. How many air-map are there in all? = 73 (N) · Flight instructor earned 5 parachute in each of 2 rounds, plus 12 bonus parachute. Then 14 parachute were lost. How many parachute are left? = 8 (C) · Flight instructor collected 40 air-map in the morning and 108 air-map in the afternoon, then split them equally among 4 cloud patrol. How many air-map did each get? = 37 (I)

Clue 4 (Percentages): "GREEN HELMET FUZZ WAS FOUND ON THE CRATE"

50% of 62 = 31 (G) · 5% of 700 = 35 (W) · 75% of 60 = 45 (D) · 5% of 740 = 37 (H) · 20% of 45 = 9 (C) · 25% of 20 = 5 (E) · 20% of 255 = 51 (R) · 25% of 84 = 21 (A) · 25% of 212 = 53 (L) · 5% of 320 = 16 (O) · 25% of 52 = 13 (N) · 50% of 110 = 55 (T) · 10% of 400 = 40 (U) · 20% of 90 = 18 (M) · 20% of 150 = 30 (S) · 40% of 130 = 52 (Z) · 5% of 820 = 41 (F)

Clue 5 (Two-step equations): surviving statement is box 10 → Amelia

$4x + 6 = 14$, $x = 2$ · $3x + 7 = 10$, $x = 1$ · $5x + 4 = 44$, $x = 8$ · $5x + 3 = 33$, $x = 6$ · $2x + 11 = 35$, $x = 12$ · $4x + 1 = 45$, $x = 11$ · $2x + 9 = 23$, $x = 7$ · $3x + 8 = 35$, $x = 9$ · $6x + 7 = 31$, $x = 4$ · $2x + 2 = 12$, $x = 5$ · $2x + 4 = 10$, $x = 3$