The Skyship Compass Mystery

Grade 4 math · Fractions of a number, Rounding, Addition, Subtraction · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone snuck into the navigation tower at Skyship Harbor and swapped the Golden Compass with a fake bronze gear. Chief Navigator Barnaby needs the Sky Cadets to solve the clues, clear innocent suspects, and catch the sneaky sky bandit before the fleet sets sail.

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 bandit is _____

Possible suspects

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

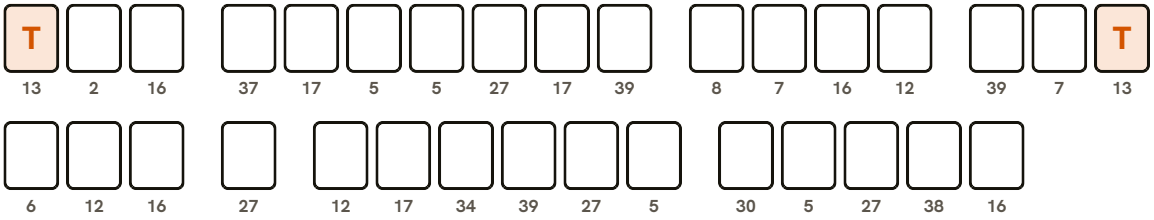
NAME	GEAR PACK	GADGET TOOL	DOMINANT HAND	HAIR STYLE	VULNERABILITY
Officer Ruby	Steam Grapple	Pocket Radar	Left Handed	Spiky Blue	Sticky Honey
Rigger Mia	Wind Whistle	Laser Goggles	Left Handed	Braided Red	Bright Flash
Lookout Ava	Steam Grapple	Pocket Radar	Right Handed	Spiky Blue	Bright Flash
Sailor Ella	Glider Wings	Laser Goggles	Left Handed	Curly Silver	Loud Whistles
Rigger Toby	Cloud Anchor	Pocket Radar	Left Handed	Spiky Blue	Loud Whistles
Sky Sailor Ivy	Glider Wings	Spyglass Lens	Left Handed	Braided Red	Bright Flash
Captain Arthur	Cloud Anchor	Map Compass	Left Handed	Spiky Blue	Bright Flash
Scout Liam	Cloud Anchor	Laser Goggles	Left Handed	Spiky Blue	Bright Flash
Rigger Mason	Brass Jetpack	Signal Flare	Left Handed	Spiky Blue	Bright Flash
Lookout Owen	Wind Whistle	Signal Flare	Right Handed	Braided Red	Sticky Honey
Captain Felix	Steam Grapple	Signal Flare	Left Handed	Spiky Blue	Sticky Honey
Cadet Maya	Steam Grapple	Laser Goggles	Right Handed	Curly Silver	Loud Whistles
Officer Eli	Steam Grapple	Laser Goggles	Left Handed	Curly Silver	Loud Whistles
Engineer Ben	Cloud Anchor	Map Compass	Left Handed	Braided Red	Bright Flash
Flyer Chloe	Steam Grapple	Spyglass Lens	Left Handed	Curly Silver	Bright Flash
Navigator Nora	Steam Grapple	Map Compass	Left Handed	Spiky Blue	Bright Flash
Navigator Ethan	Wind Whistle	Pocket Radar	Left Handed	Spiky Blue	Sticky Honey
Pilot Hazel	Cloud Anchor	Signal Flare	Right Handed	Spiky Blue	Loud Whistles
Pilot Caleb	Glider Wings	Signal Flare	Left Handed	Curly Silver	Bright Flash
Engineer Zoe	Glider Wings	Map Compass	Left Handed	Spiky Blue	Bright Flash
Deckhand Penny	Brass Jetpack	Signal Flare	Left Handed	Braided Red	Sticky Honey

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CLUE 1 Fractions of a number

> Barnaby counted the fuel canisters left on the dock and realized only a fraction held secret notes.

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



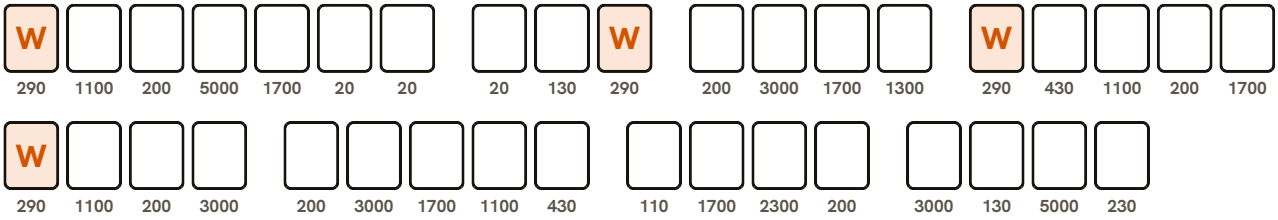
1/4 of 52 = ☐ → T	2/4 of 12 = ☐ → U	3/6 of 68 = ☐ → G
6/8 of 36 = ☐ → A	3/10 of 130 = ☐ → N	5/10 of 60 = ☐ → F
1/2 of 14 = ☐ → O	2/6 of 15 = ☐ → L	2/10 of 185 = ☐ → V
2/8 of 8 = ☐ → H	1/5 of 85 = ☐ → I	2/4 of 32 = ☐ → E
5/10 of 76 = ☐ → R	1/4 of 32 = ☐ → D	3/6 of 24 = ☐ → S

Scratch space:

CLUE 2 Rounding

The flight altimeter display only shows rounded numbers when tracking mysterious flying shadows.

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



Round 286 to the nearest ten ☐ → W

Round 243 to the nearest hundred ☐ → T

Round 126 to the nearest ten ☐ → A

Round 1,253 to the nearest hundred ☐ → M

Round 226 to the nearest ten ☐ → D

Round 106 to the nearest ten ☐ → L

Round 2,282 to the nearest hundred ☐ → F

Round 4,989 to the nearest thousand ☐ → N

Round 1,728 to the nearest hundred ☐ → E

Round 2,893 to the nearest thousand ☐ → H

Round 1,060 to the nearest hundred ☐ → I

Round 427 to the nearest ten ☐ → R

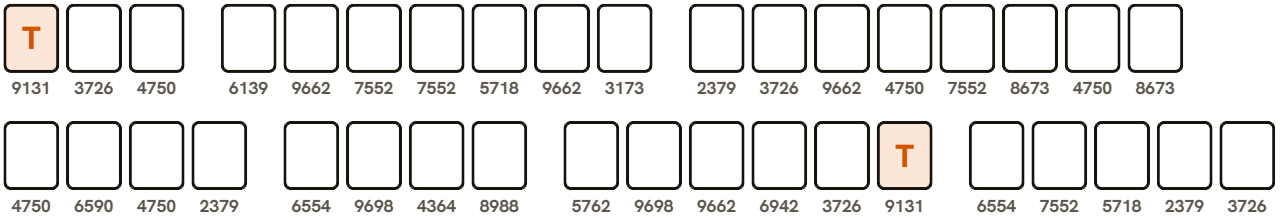
Round 16 to the nearest ten ☐ → S

Scratch space:

CLUE 3 Addition

The deckhands gathered up all the brass gears dropped along the runway to figure out the trail.

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



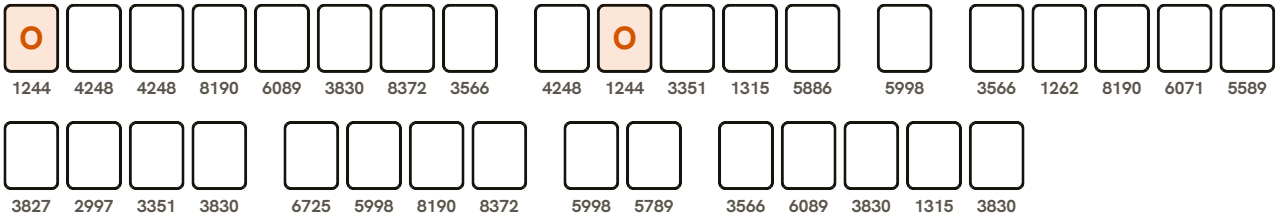
5713 + 3418 = ☐ → T	3580 + 2559 = ☐ → V	4920 + 2632 = ☐ → L
3657 + 5331 = ☐ → M	2886 + 2832 = ☐ → A	2174 + 999 = ☐ → N
1469 + 2895 = ☐ → O	2617 + 4325 = ☐ → G	748 + 1631 = ☐ → S
3464 + 6198 = ☐ → I	5994 + 2679 = ☐ → D	2379 + 4175 = ☐ → F
2338 + 1388 = ☐ → H	3422 + 6276 = ☐ → R	2530 + 4060 = ☐ → Y
3149 + 2613 = ☐ → B	1521 + 3229 = ☐ → E	

Scratch space:

CLUE 4 Subtraction

> After clearing out the duplicate supply boxes, the crew calculated how many crates remained missing.

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



2928 - 1684 = ☐ → O

9469 - 3398 = ☐ → K

5853 - 4591 = ☐ → P

9533 - 3744 = ☐ → T

10061 - 4175 = ☐ → D

6708 - 2878 = ☐ → E

8285 - 2196 = ☐ → C

5871 - 2305 = ☐ → S

6394 - 396 = ☐ → A

10999 - 2627 = ☐ → R

3974 - 623 = ☐ → U

3964 - 137 = ☐ → B

4777 - 529 = ☐ → F

8010 - 1285 = ☐ → H

11258 - 3068 = ☐ → I

9970 - 4381 = ☐ → Y

3223 - 1908 = ☐ → N

3852 - 855 = ☐ → L

Scratch space:

CLUE 5 Fractions of a number - the last clue

> Barnaby examined the sky charts and calculated what fraction of the air routes were still safe.

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:

2/8 of 20 = ☐	1/4 of 36 = ☐	2/10 of 10 = ☐	2/3 of 6 = ☐
2/6 of 33 = ☐	1/8 of 24 = ☐	1/3 of 21 = ☐	1/4 of 32 = ☐
1/3 of 3 = ☐	4/10 of 15 = ☐	4/6 of 15 = ☐	

Step 2 - cross out the sentence with each answer:

1. The villain fired a steam grapple onto the ledge, then tracked the fleet with a pocket radar.
2. The villain fired a steam grapple onto the ledge, then checked directions on a map compass.
3. The villain zoomed past on a brass jetpack, then tracked the fleet with a pocket radar.
4. The villain dropped a cloud anchor into the mist, then lit up the night with a signal flare.
5. The villain dropped a cloud anchor into the mist, then checked directions on a map compass.
6. The villain zoomed past on a brass jetpack, then scanned the sky with laser goggles.
7. The villain zoomed past on a brass jetpack, then lit up the night with a signal flare.
8. The villain zoomed past on a brass jetpack, then adjusted a sharp spyglass lens.
9. The villain soared overhead using glider wings, then checked directions on a map compass.
10. The villain blew a wind whistle to clear the deck, then tracked the fleet with a pocket radar.
11. The villain zoomed past on a brass jetpack, then checked directions on a map compass.
12. The villain dropped a cloud anchor into the mist, then scanned the sky with laser goggles.

TEACHER / PARENT

Answer Key

The Skyship Compass Mystery

Culprit: Scout Liam

Cloud Anchor · Laser Goggles · Left Handed · Spiky Blue · Bright Flash

Trail: Start 21 → Clue 1 15 → Clue 2 13 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT USE A SIGNAL FLARE"

1/4 of 52 = 13 (T) · 2/4 of 12 = 6 (U) · 3/6 of 68 = 34 (G) · 6/8 of 36 = 27 (A) · 3/10 of 130 = 39 (N) · 5/10 of 60 = 30 (F) · 1/2 of 14 = 7 (O) · 2/6 of 15 = 5 (L) · 2/10 of 185 = 37 (V) · 2/8 of 8 = 2 (H) · 1/5 of 85 = 17 (I) · 2/4 of 32 = 16 (E) · 5/10 of 76 = 38 (R) · 1/4 of 32 = 8 (D) · 3/6 of 24 = 12 (S)

Clue 2 (Rounding): "WITNESS SAW THEM WRITE WITH THEIR LEFT HAND"

Round 286 to the nearest ten = 290 (W) · Round 243 to the nearest hundred = 200 (T) · Round 126 to the nearest ten = 130 (A) · Round 1,253 to the nearest hundred = 1300 (M) · Round 226 to the nearest ten = 230 (D) · Round 106 to the nearest ten = 110 (L) · Round 2,282 to the nearest hundred = 2300 (F) · Round 4,989 to the nearest thousand = 5000 (N) · Round 1,728 to the nearest hundred = 1700 (E) · Round 2,893 to the nearest thousand = 3000 (H) · Round 1,060 to the nearest hundred = 1100 (I) · Round 427 to the nearest ten = 430 (R) · Round 16 to the nearest ten = 20 (S)

Clue 3 (Addition): "THE VILLAIN SHIELDED EYES FROM BRIGHT FLASH"

5713 + 3418 = 9131 (T) · 3580 + 2559 = 6139 (V) · 4920 + 2632 = 7552 (L) · 3657 + 5331 = 8988 (M) · 2886 + 2832 = 5718 (A) · 2174 + 999 = 3173 (N) · 1469 + 2895 = 4364 (O) · 2617 + 4325 = 6942 (G) · 748 + 1631 = 2379 (S) · 3464 + 6198 = 9662 (I) · 5994 + 2679 = 8673 (D) · 2379 + 4175 = 6554 (F) · 2338 + 1388 = 3726 (H) · 3422 + 6276 = 9698 (R) · 2530 + 4060 = 6590 (Y) · 3149 + 2613 = 5762 (B) · 1521 + 3229 = 4750 (E)

Clue 4 (Subtraction): "OFFICERS FOUND A SPIKY BLUE HAIR AT SCENE"

2928 - 1684 = 1244 (O) · 9469 - 3398 = 6071 (K) · 5853 - 4591 = 1262 (P) · 9533 - 3744 = 5789 (T) · 10061 - 4175 = 5886 (D) · 6708 - 2878 = 3830 (E) · 8285 - 2196 = 6089 (C) · 5871 - 2305 = 3566 (S) · 6394 - 396 = 5998 (A) · 10999 - 2627 = 8372 (R) · 3974 - 623 = 3351 (U) · 3964 - 137 = 3827 (B) · 4777 - 529 = 4248 (F) · 8010 - 1285 = 6725 (H) · 11258 - 3068 = 8190 (I) · 9970 - 4381 = 5589 (Y) · 3223 - 1908 = 1315 (N) · 3852 - 855 = 2997 (L)

Clue 5 (Fractions of a number): surviving statement is box 12 → Scout Liam

2/8 of 20 = 5 · 1/4 of 36 = 9 · 2/10 of 10 = 2 · 2/3 of 6 = 4 · 2/6 of 33 = 11 · 1/8 of 24 = 3 · 1/3 of 21 = 7 · 1/4 of 32 = 8 · 1/3 of 3 = 1 · 4/10 of 15 = 6 · 4/6 of 15 = 10