The Case of the Missing Compass Rose

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone snuck into the chart room at Sapphire Cove Island Academy and stole the ancient Compass Rose! Solve the clues to reveal who did it.

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 The Masked Navigator is _____

Possible suspects

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

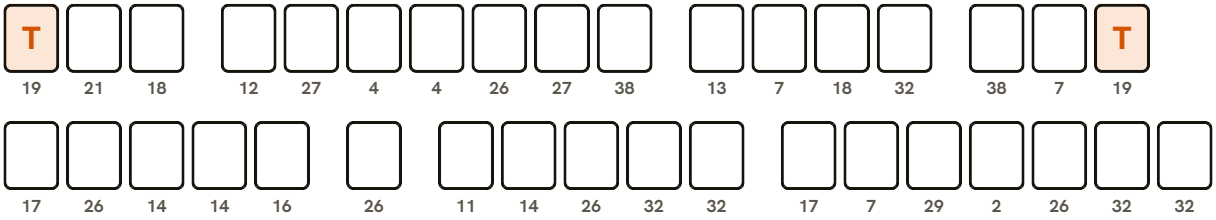
NAME	NAVAL POWER	EXPLORATION GEAR	WRITING HAND	HAIR STYLE	VULNERABILITY
Soren Blake	Wind Whispering	Glider Wings	Left-handed writer	Spiky red hair	Loud foghorns
Liam Archer	Current Control	Grappling Hook	Right-handed writer	Spiky red hair	Bright flashlights
Hugo Thorne	Star Reading	Fog Lantern	Left-handed writer	Spiky red hair	Loud foghorns
Elena Vance	Wind Whispering	Pocket Telescope	Left-handed writer	Spiky red hair	Loud foghorns
Finn Oakley	Tide Bending	Pocket Telescope	Left-handed writer	Spiky red hair	Salty sea breeze
Riley Hayes	Star Reading	Grappling Hook	Right-handed writer	Braided brown hair	Loud foghorns
Mia Holloway	Wind Whispering	Glider Wings	Left-handed writer	Spiky red hair	Salty sea breeze
Olivia West	Current Control	Grappling Hook	Left-handed writer	Curly black hair	Salty sea breeze
Nico Rivers	Map Manipulation	Pocket Telescope	Left-handed writer	Braided brown hair	Loud foghorns
Scout Nora	Current Control	Brass Compass	Left-handed writer	Spiky red hair	Salty sea breeze
Explorer Ivy	Wind Whispering	Brass Compass	Left-handed writer	Braided brown hair	Loud foghorns
Mateo Cruz	Wind Whispering	Pocket Telescope	Right-handed writer	Curly black hair	Salty sea breeze
Cadet Maya	Star Reading	Brass Compass	Left-handed writer	Curly black hair	Bright flashlights
Captain Barnaby	Star Reading	Glider Wings	Right-handed writer	Braided brown hair	Salty sea breeze
Navigator Sam	Tide Bending	Grappling Hook	Left-handed writer	Spiky red hair	Salty sea breeze
Piper Finch	Wind Whispering	Glider Wings	Right-handed writer	Spiky red hair	Salty sea breeze
Rookie Jonah	Map Manipulation	Glider Wings	Left-handed writer	Curly black hair	Salty sea breeze
Jasper Drake	Star Reading	Fog Lantern	Right-handed writer	Curly black hair	Salty sea breeze
Skipper Zoe	Map Manipulation	Pocket Telescope	Left-handed writer	Spiky red hair	Salty sea breeze
Kira Sterling	Tide Bending	Fog Lantern	Left-handed writer	Curly black hair	Bright flashlights
Quinn Baxter	Star Reading	Glider Wings	Left-handed writer	Spiky red hair	Loud foghorns

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CLUE 1 Fractions of a number

> We searched the island workshop map. Only a fraction of the total supply crates were untouched.

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



1/5 of 95 = ☐ → T

2/10 of 80 = ☐ → Y

2/3 of 18 = ☐ → V

3/6 of 34 = ☐ → C

2/10 of 105 = ☐ → H

4/6 of 48 = ☐ → S

4/8 of 26 = ☐ → D

2/6 of 42 = ☐ → R

2/6 of 54 = ☐ → E

2/4 of 8 = ☐ → L

2/3 of 39 = ☐ → A

3/6 of 54 = ☐ → I

3/6 of 58 = ☐ → M

1/3 of 114 = ☐ → N

2/5 of 5 = ☐ → P

2/6 of 21 = ☐ → O

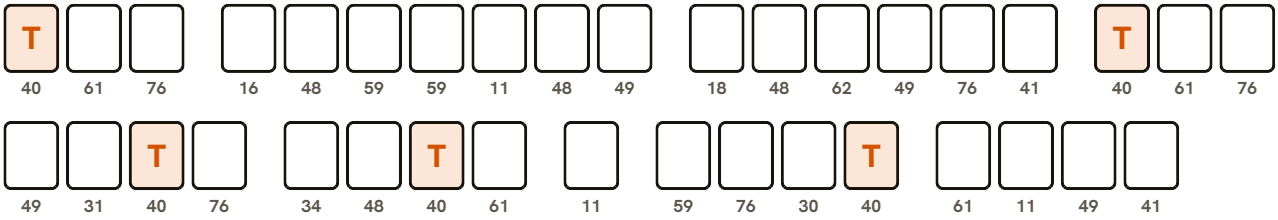
1/10 of 110 = ☐ → B

Scratch space:

CLUE 2 Order of operations

To unlock the captain's desk, we had to follow a strict order of steps on the lock tumbler.

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



5 × 12 - 20 = ☐ → T

8 × 8 - 16 = ☐ → I

12 × 3 - 20 = ☐ → V

56 + 5 × 4 = ☐ → E

7 × 11 - 28 = ☐ → N

5 × 12 - 26 = ☐ → W

2 × 10 - 9 = ☐ → A

6 × 12 - 10 = ☐ → G

8 × 4 - 1 = ☐ → O

3 × 12 - 6 = ☐ → F

3 × 10 - 12 = ☐ → S

12 × 7 - 23 = ☐ → H

7 × 10 - 29 = ☐ → D

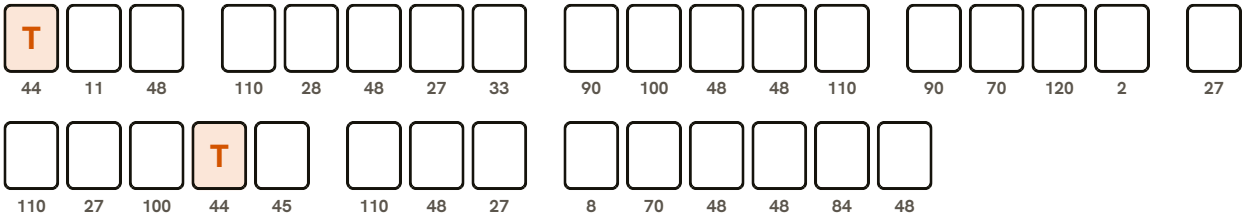
10 × 8 - 21 = ☐ → L

Scratch space:

CLUE 3 Multiplication facts (1-12)

> The harbor master counted identical stacks of sea charts lined up in equal rows across the desk.

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



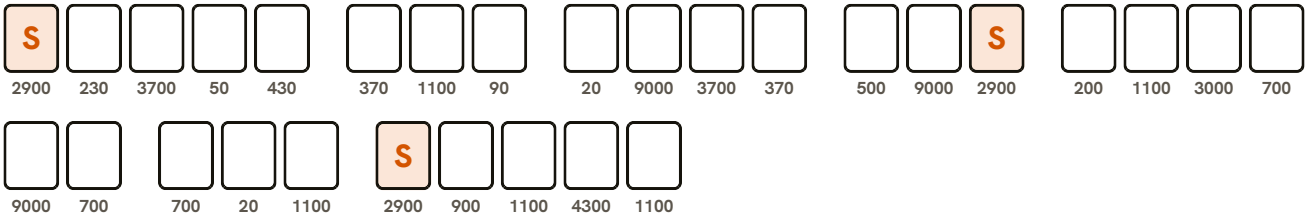
11 × 4 = ☐ → T	11 × 10 = ☐ → S	3 × 9 = ☐ → A
10 × 10 = ☐ → L	12 × 4 = ☐ → E	1 × 11 = ☐ → H
3 × 11 = ☐ → K	5 × 9 = ☐ → Y	12 × 10 = ☐ → O
10 × 9 = ☐ → F	4 × 7 = ☐ → N	8 × 1 = ☐ → B
12 × 7 = ☐ → Z	7 × 10 = ☐ → R	2 × 1 = ☐ → M

Scratch space:

CLUE 4 Rounding

The ship's digital echo sounder only shows rounded depth measures to the nearest ten feet.

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



Round 2,919 to the nearest hundred ☐ → S

Round 48 to the nearest ten ☐ → K

Round 942 to the nearest hundred ☐ → C

Round 234 to the nearest ten ☐ → P

Round 8,680 to the nearest thousand ☐ → A

Round 657 to the nearest hundred ☐ → T

Round 483 to the nearest hundred ☐ → W

Round 86 to the nearest ten ☐ → D

Round 4,274 to the nearest hundred ☐ → N

Round 179 to the nearest hundred ☐ → L

Round 3,653 to the nearest hundred ☐ → I

Round 20 to the nearest ten ☐ → H

Round 3,189 to the nearest thousand ☐ → F

Round 426 to the nearest ten ☐ → Y

Round 1,131 to the nearest hundred ☐ → E

Round 366 to the nearest ten ☐ → R

Scratch space:

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

> We divided the recovered map fragments equally among all the cadet teams to decode the 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:

80 ÷ 8 = ☐ | 24 ÷ 2 = ☐ | 40 ÷ 5 = ☐ | 30 ÷ 10 = ☐ | 7 ÷ 1 = ☐

90 ÷ 10 = ☐ | 121 ÷ 11 = ☐ | 3 ÷ 3 = ☐ | 12 ÷ 3 = ☐ | 55 ÷ 11 = ☐

16 ÷ 8 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain charted the night sky, then tracked the paths with a brass compass.
2. The villain warped the parchment map, then soared past the lookout on glider wings.
3. The villain warped the parchment map, then vanished into mist with a fog lantern.
4. The villain shifted the bay currents, then soared past the lookout on glider wings.
5. The villain charted the night sky, then zipped away using a grappling hook.
6. The villain pulled the tide high, then spied on the harbor with a pocket telescope.
7. The villain charted the night sky, then vanished into mist with a fog lantern.
8. The villain warped the parchment map, then spied on the harbor with a pocket telescope.
9. The villain summoned a gust of wind, then vanished into mist with a fog lantern.
10. The villain pulled the tide high, then zipped away using a grappling hook.
11. The villain pulled the tide high, then vanished into mist with a fog lantern.
12. The villain summoned a gust of wind, then soared past the lookout on glider wings.

TEACHER / PARENT

Answer Key

The Case of the Missing Compass Rose

Culprit: Finn Oakley

Tide Bending · Pocket Telescope · Left-handed writer · Spiky red hair · Salty sea breeze

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

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT CARRY A BRASS COMPASS"

1/5 of 95 = 19 (T) · 2/10 of 80 = 16 (Y) · 2/3 of 18 = 12 (V) · 3/6 of 34 = 17 (C) · 2/10 of 105 = 21 (H) · 4/6 of 48 = 32 (S) · 4/8 of 26 = 13 (D) · 2/6 of 42 = 14 (R) · 2/6 of 54 = 18 (E) · 2/4 of 8 = 4 (L) · 2/3 of 39 = 26 (A) · 3/6 of 54 = 27 (I) · 3/6 of 58 = 29 (M) · 1/3 of 114 = 38 (N) · 2/5 of 5 = 2 (P) · 2/6 of 21 = 7 (O) · 1/10 of 110 = 11 (B)

Clue 2 (Order of operations): "THE VILLAIN SIGNED THE NOTE WITH A LEFT HAND"

5 × 12 - 20 = 40 (T) · 8 × 8 - 16 = 48 (I) · 12 × 3 - 20 = 16 (V) · 56 + 5 × 4 = 76 (E) · 7 × 11 - 28 = 49 (N) · 5 × 12 - 26 = 34 (W) · 2 × 10 - 9 = 11 (A) · 6 × 12 - 10 = 62 (G) · 8 × 4 - 1 = 31 (O) · 3 × 12 - 6 = 30 (F) · 3 × 10 - 12 = 18 (S) · 12 × 7 - 23 = 61 (H) · 7 × 10 - 29 = 41 (D) · 10 × 8 - 21 = 59 (L)

Clue 3 (Multiplication facts (1-12)): "THE SNEAK FLEES FROM A SALTY SEA BREEZE"

11 × 4 = 44 (T) · 11 × 10 = 110 (S) · 3 × 9 = 27 (A) · 10 × 10 = 100 (L) · 12 × 4 = 48 (E) · 1 × 11 = 11 (H) · 3 × 11 = 33 (K) · 5 × 9 = 45 (Y) · 12 × 10 = 120 (O) · 10 × 9 = 90 (F) · 4 × 7 = 28 (N) · 8 × 1 = 8 (B) · 12 × 7 = 84 (Z) · 7 × 10 = 70 (R) · 2 × 1 = 2 (M)

Clue 4 (Rounding): "SPIKY RED HAIR WAS LEFT AT THE SCENE"

Round 2,919 to the nearest hundred = 2900 (S) · Round 48 to the nearest ten = 50 (K) · Round 942 to the nearest hundred = 900 (C) · Round 234 to the nearest ten = 230 (P) · Round 8,680 to the nearest thousand = 9000 (A) · Round 657 to the nearest hundred = 700 (T) · Round 483 to the nearest hundred = 500 (W) · Round 86 to the nearest ten = 90 (D) · Round 4,274 to the nearest hundred = 4300 (N) · Round 179 to the nearest hundred = 200 (L) · Round 3,653 to the nearest hundred = 3700 (I) · Round 20 to the nearest ten = 20 (H) · Round 3,189 to the nearest thousand = 3000 (F) · Round 426 to the nearest ten = 430 (Y) · Round 1,131 to the nearest hundred = 1100 (E) · Round 366 to the nearest ten = 370 (R)

Clue 5 (Division facts (1-12)): surviving statement is box 6 → Finn Oakley

80 ÷ 8 = 10 · 24 ÷ 2 = 12 · 40 ÷ 5 = 8 · 30 ÷ 10 = 3 · 7 ÷ 1 = 7 · 90 ÷ 10 = 9 · 121 ÷ 11 = 11 · 3 ÷ 3 = 1 · 12 ÷ 3 = 4 · 55 ÷ 11 = 5 · 16 ÷ 8 = 2