The Case of the Missing Star-Map

Grade 5 math · Place value, Addition, Subtraction, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

The golden Star-Map has disappeared from the High Observatory in the clouds! A sneaky rogue captain slipped in and took it. Without the map, our airships will get lost in the thick mist. We need your help to track down the thief and recover the map before they sail away.

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 captain is _____

Possible suspects

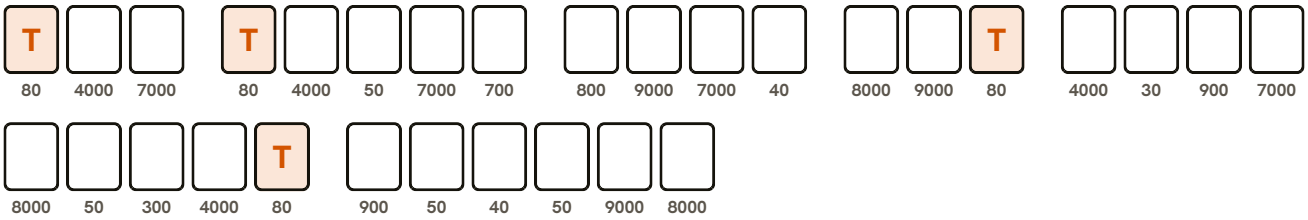
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	SHIP TOOL	SPECIAL SKILL	STEERING HAND	HEADGEAR STYLE	FAVORITE SNACK
Charles Lindbergh	propeller boots	night vision	right handed grip	leather aviator cap	salty sea cheese
Ibn Battuta	sky compass	gust blasting	right handed grip	feathered tricorn hat	salty sea cheese
Valentina Tereshkova	cloud cannon	map reading	right handed grip	feathered tricorn hat	sweet honey biscuits
Laura Dekker	sky compass	storm calling	right handed grip	brass flight goggles	sweet honey biscuits
Amelia Earhart	propeller boots	map reading	right handed grip	brass flight goggles	sweet honey biscuits
Steve Fossett	cloud cannon	gust blasting	left handed grip	feathered tricorn hat	sweet honey biscuits
Vasco da Gama	cloud cannon	storm calling	right handed grip	leather aviator cap	sweet honey biscuits
Harriet Quimby	propeller boots	night vision	right handed grip	brass flight goggles	sweet honey biscuits
Jeanne Baret	propeller boots	cloud cloaking	right handed grip	feathered tricorn hat	sweet honey biscuits
Wiley Post	propeller boots	map reading	right handed grip	leather aviator cap	sour lime drops
Florence Bascom	grappling hook	night vision	left handed grip	brass flight goggles	salty sea cheese
Will Rogers	grappling hook	gust blasting	right handed grip	brass flight goggles	sweet honey biscuits
James Cook	sky compass	map reading	right handed grip	brass flight goggles	sour lime drops
Richard Byrd	sky compass	night vision	right handed grip	feathered tricorn hat	sweet honey biscuits
Roald Amundsen	grappling hook	cloud cloaking	left handed grip	brass flight goggles	sweet honey biscuits
Jacques Cousteau	grappling hook	storm calling	left handed grip	brass flight goggles	sweet honey biscuits
Marco Polo	cloud cannon	storm calling	left handed grip	feathered tricorn hat	sour lime drops
Isabella Bird	sky compass	night vision	right handed grip	leather aviator cap	salty sea cheese
Mary Kingsley	sky compass	gust blasting	right handed grip	brass flight goggles	sweet honey biscuits
Bessie Coleman	grappling hook	night vision	left handed grip	feathered tricorn hat	salty sea cheese
Matthew Henson	grappling hook	night vision	right handed grip	feathered tricorn hat	sweet honey biscuits

CLUE 1 Place value

> We found a broken digital lock on the map chest. The code uses digits in different place values. Look at the numbers to unlock the first clue.

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



What is the value of the 8 in 47,785? ☐ → **T**

What is the value of the 9 in 309,311? ☐ → **O**

What is the value of the 9 in 364,965? ☐ → **V**

What is the value of the 8 in 17,871? ☐ → **D**

What is the value of the 4 in 64,992? ☐ → **H**

What is the value of the 3 in 246,937? ☐ → **A**

What is the value of the 8 in 548,999? ☐ → **N**

What is the value of the 3 in 709,310? ☐ → **G**

What is the value of the 7 in 222,740? ☐ → **F**

What is the value of the 5 in 31,758? ☐ → **I**

What is the value of the 4 in 75,147? ☐ → **S**

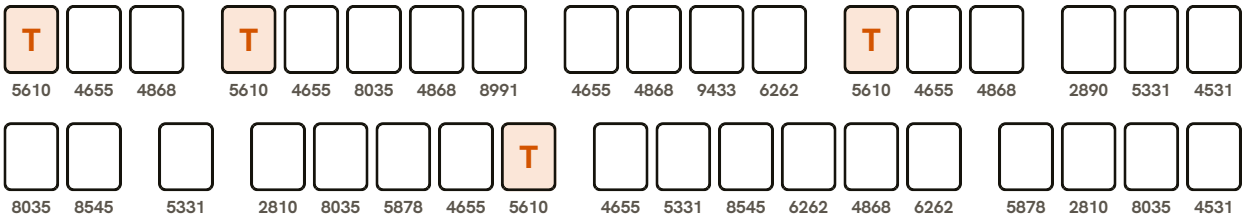
What is the value of the 7 in 427,093? ☐ → **E**

Scratch space:

CLUE 2 Addition

> The thief knocked over a jar of golden rivets. We need to add all the scattered pieces together to find where the thief went next.

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



1940 + 3670 = ☐ → T	2437 + 2431 = ☐ → E	2106 + 2549 = ☐ → H
2131 + 2400 = ☐ → P	3943 + 4092 = ☐ → I	1083 + 1727 = ☐ → R
2882 + 2996 = ☐ → G	1338 + 1552 = ☐ → M	2988 + 3274 = ☐ → D
2888 + 6103 = ☐ → F	3713 + 1618 = ☐ → A	3871 + 4674 = ☐ → N
4915 + 4518 = ☐ → L		

Scratch space:

CLUE 3 Subtraction

> A supply barrel was tipped over. If we subtract the spilled fuel from the total, we can calculate how far the thief could fly.

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

4051 - 2849 = ☐ → **W**

4680 - 762 = ☐ → **N**

5386 - 2062 = ☐ → **T**

11643 - 2781 = ☐ → **E**

11419 - 3081 = ☐ → **S**

5796 - 1736 = ☐ → **D**

8360 - 1142 = ☐ → **M**

6725 - 3815 = ☐ → **B**

5484 - 3606 = ☐ → **O**

7666 - 963 = ☐ → **I**

8514 - 3015 = ☐ → **Y**

4914 - 394 = ☐ → **C**

6526 - 4472 = ☐ → **F**

1952 - 114 = ☐ → **H**

8178 - 1178 = ☐ → **U**

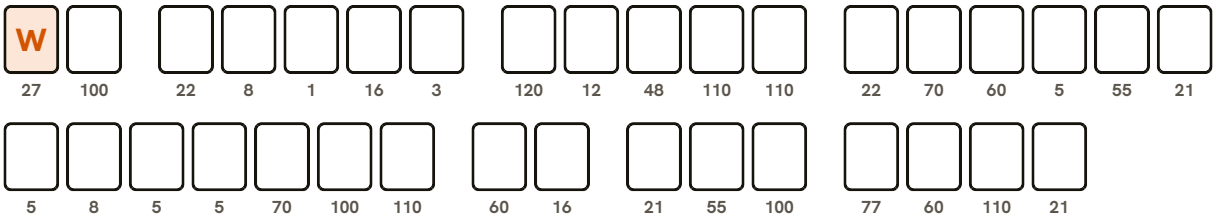
8884 - 1375 = ☐ → **R**

Scratch space:

CLUE 4 Multiplication facts (1-12)

> The thief fled past the cargo deck. By multiplying the rows of supply crates, we can find the secret passage they used.

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



3 × 9 = ☐ → **W**

4 × 4 = ☐ → **N**

1 × 1 = ☐ → **U**

10 × 7 = ☐ → **L**

8 × 6 = ☐ → **A**

10 × 10 = ☐ → **E**

2 × 4 = ☐ → **O**

5 × 12 = ☐ → **I**

11 × 10 = ☐ → **S**

3 × 7 = ☐ → **T**

5 × 11 = ☐ → **H**

2 × 6 = ☐ → **R**

2 × 11 = ☐ → **F**

10 × 12 = ☐ → **B**

1 × 5 = ☐ → **G**

7 × 11 = ☐ → **M**

3 × 1 = ☐ → **D**

Scratch space:

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

> The sky patrol has several spyglasses to share. We must divide them equally among the scouts to spot the thief from the guard tower.

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:

36 ÷ 6 = ☐ | 72 ÷ 6 = ☐ | 4 ÷ 2 = ☐ | 55 ÷ 5 = ☐ | 63 ÷ 7 = ☐

8 ÷ 1 = ☐ | 14 ÷ 2 = ☐ | 10 ÷ 1 = ☐ | 6 ÷ 2 = ☐ | 35 ÷ 7 = ☐

48 ÷ 12 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain navigated through the thick fog with a sky compass, then knocked the guards back with gust blasting.
2. The villain swung across the rigging with a grappling hook, then knocked the guards back with gust blasting.
3. The villain blasted a path through the wall with a cloud cannon, then knocked the guards back with gust blasting.
4. The villain soared off the balcony on a wind glider, then slipped through the dark halls using night vision.
5. The villain soared off the balcony on a wind glider, then knocked the guards back with gust blasting.
6. The villain zipped up to the high rafters with propeller boots, then plotted a quick escape route using map reading.
7. The villain blasted a path through the wall with a cloud cannon, then escaped into the clouds by storm calling.
8. The villain blasted a path through the wall with a cloud cannon, then slipped through the dark halls using night vision.
9. The villain zipped up to the high rafters with propeller boots, then escaped into the clouds by storm calling.
10. The villain blasted a path through the wall with a cloud cannon, then plotted a quick escape route using map reading.
11. The villain navigated through the thick fog with a sky compass, then slipped through the dark halls using night vision.
12. The villain navigated through the thick fog with a sky compass, then escaped into the clouds by storm calling.

TEACHER / PARENT

Answer Key

The Case of the Missing Star-Map

Culprit: Mary Kingsley

sky compass · gust blasting · right handed grip · brass flight goggles · sweet honey biscuits

Trail: Start 21 → Clue 1 14 → Clue 2 10 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE THIEF DOES NOT HAVE NIGHT VISION"

What is the value of the 8 in 47,785? = 80 (T) · What is the value of the 9 in 309,311? = 9000 (O) · What is the value of the 9 in 364,965? = 900 (V) · What is the value of the 8 in 17,871? = 800 (D) · What is the value of the 4 in 64,992? = 4000 (H) · What is the value of the 3 in 246,937? = 30 (A) · What is the value of the 8 in 548,999? = 8000 (N) · What is the value of the 3 in 709,310? = 300 (G) · What is the value of the 7 in 222,740? = 700 (F) · What is the value of the 5 in 31,758? = 50 (I) · What is the value of the 4 in 75,147? = 40 (S) · What is the value of the 7 in 427,093? = 7000 (E)

Clue 2 (Addition): "THE THIEF HELD THE MAP IN A RIGHT HANDED GRIP"

1940 + 3670 = 5610 (T) · 2437 + 2431 = 4868 (E) · 2106 + 2549 = 4655 (H) · 2131 + 2400 = 4531 (P) · 3943 + 4092 = 8035 (I) · 1083 + 1727 = 2810 (R) · 2882 + 2996 = 5878 (G) · 1338 + 1552 = 2890 (M) · 2988 + 3274 = 6262 (D) · 2888 + 6103 = 8991 (F) · 3713 + 1618 = 5331 (A) · 3871 + 4674 = 8545 (N) · 4915 + 4518 = 9433 (L)

Clue 3 (Subtraction): "WE FOUND CRUMBS OF SWEET HONEY BISCUITS"

4051 - 2849 = 1202 (W) · 4680 - 762 = 3918 (N) · 5386 - 2062 = 3324 (T) · 11643 - 2781 = 8862 (E) · 11419 - 3081 = 8338 (S) · 5796 - 1736 = 4060 (D) · 8360 - 1142 = 7218 (M) · 6725 - 3815 = 2910 (B) · 5484 - 3606 = 1878 (O) · 7666 - 963 = 6703 (I) · 8514 - 3015 = 5499 (Y) · 4914 - 394 = 4520 (C) · 6526 - 4472 = 2054 (F) · 1952 - 114 = 1838 (H) · 8178 - 1178 = 7000 (U) · 8884 - 1375 = 7509 (R)

Clue 4 (Multiplication facts (1-12)): "WE FOUND BRASS FLIGHT GOGGLES IN THE MIST"

3 × 9 = 27 (W) · 4 × 4 = 16 (N) · 1 × 1 = 1 (U) · 10 × 7 = 70 (L) · 8 × 6 = 48 (A) · 10 × 10 = 100 (E) · 2 × 4 = 8 (O) · 5 × 12 = 60 (I) · 11 × 10 = 110 (S) · 3 × 7 = 21 (T) · 5 × 11 = 55 (H) · 2 × 6 = 12 (R) · 2 × 11 = 22 (F) · 10 × 12 = 120 (B) · 1 × 5 = 5 (G) · 7 × 11 = 77 (M) · 3 × 1 = 3 (D)

Clue 5 (Division facts (1-12)): surviving statement is box 1 → Mary Kingsley

36 ÷ 6 = 6 · 72 ÷ 6 = 12 · 4 ÷ 2 = 2 · 55 ÷ 5 = 11 · 63 ÷ 7 = 9 · 8 ÷ 1 = 8 · 14 ÷ 2 = 7 · 10 ÷ 1 = 10 · 6 ÷ 2 = 3 · 35 ÷ 7 = 5 · 48 ÷ 12 = 4