



The Sinking of the Saniana

Grade 5 math · Subtraction, Multiplication, Fractions of a number, Addition · Reading level grades 5-6

Detective: _____ Date: _____

The proud training warship Saniana has been scuttled and is sinking fast in the harbor! Police Chief Joshua Dax Zeno needs your top-tier detective skills to track down the culprit before the entire fleet is ruined.

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 harbor saboteur is _____

Possible suspects

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

NAME	SABOTAGE METHOD	ESCAPE GADGET	GLOVE PREFERENCE	HAIR COLOR	PERSONAL WEAKNESS
Sailor Jax	flooding the ballast tanks	propeller boots	right handed glove	bright blue hair	distracted by sea biscuits
Sailor Cora	clogging the steam pipes	rocket flippers	right handed glove	neon green hair	afraid of soapy water
Officer Bryce	cutting the anchor chains	smoke screens	left handed glove	spiky orange hair	allergic to sea salt
Pilot Kira	clogging the steam pipes	rocket flippers	right handed glove	neon green hair	distracted by sea biscuits
Skipper Paige	overloading the battery banks	rocket flippers	right handed glove	neon green hair	distracted by sea biscuits
Gunner Briggs	cutting the anchor chains	propeller boots	left handed glove	neon green hair	distracted by sea biscuits
Commander Reed	jamming the rudder gears	rocket flippers	left handed glove	bright blue hair	distracted by sea biscuits
Captain Vance	flooding the ballast tanks	smoke screens	right handed glove	neon green hair	allergic to sea salt
Commander Zane	flooding the ballast tanks	rocket flippers	left handed glove	spiky orange hair	afraid of soapy water
Sailor Bruno	clogging the steam pipes	smoke screens	right handed glove	bright blue hair	distracted by sea biscuits
Cadet Marina	overloading the battery banks	propeller boots	left handed glove	bright blue hair	afraid of soapy water
Captain Fletcher	cutting the anchor chains	grappling hooks	left handed glove	bright blue hair	distracted by sea biscuits
Commander Finn	cutting the anchor chains	laser flashlights	right handed glove	bright blue hair	allergic to sea salt
Lieutenant Cruz	flooding the ballast tanks	grappling hooks	right handed glove	neon green hair	distracted by sea biscuits
Skipper Knox	clogging the steam pipes	rocket flippers	right handed glove	bright blue hair	distracted by sea biscuits
Navigator Silas	flooding the ballast tanks	laser flashlights	left handed glove	neon green hair	allergic to sea salt
Cadet Leo	flooding the ballast tanks	laser flashlights	right handed glove	neon green hair	allergic to sea salt
Cadet Toby	overloading the battery banks	smoke screens	left handed glove	bright blue hair	distracted by sea biscuits
Sailor Skye	cutting the anchor chains	grappling hooks	right handed glove	spiky orange hair	distracted by sea biscuits
Navigator Cole	jamming the rudder gears	rocket flippers	right handed glove	bright blue hair	distracted by sea biscuits
Pilot Wendy	cutting the anchor chains	laser flashlights	right handed glove	bright blue hair	distracted by sea biscuits

CLUE 1 Subtraction

Chief Joshua Dax Zeno counts the remaining safety vests on the dock. Subtracting the remaining vests from our starting ship inventory reveals our first clue about the escape gear.

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

T																	T
5079	6793	1217	5849	4607	1200	1200	8046	4607	1695	3287	3454	1217	5486	1695	3454	5079	

3913	5486	1217	5486	8601	3454	3416	1217	5486	8978	2421	1217	1217	1695	5486

$$6920 - 1841 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$9444 - 2651 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$8436 - 4982 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$3419 - 1724 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$3991 - 1570 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$8074 - 4658 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$7737 - 1888 = \boxed{} \rightarrow \boxed{\text{V}}$$

$$8449 - 403 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$3974 - 2757 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$12664 - 3686 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$9546 - 945 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$5839 - 1926 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$10427 - 4941 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$6069 - 2782 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$3128 - 1928 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$4764 - 157 = \boxed{} \rightarrow \boxed{\text{I}}$$

Scratch space:

CLUE 2
Multiplication facts (1-12)

We search the grid of storage lockers on the damaged lower deck. Multiplying the rows of lockers by the items in each row helps us locate a waterproof notebook containing the suspect's glove details.

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

T															
70	110	84	4	11	4	32	84	54	70	12	81	108	84	144	
				T											
108	22	14	110	70	110	144	10	35	84	35	14	64	81	132	84

$10 \times 7 = \square \rightarrow$ T	$9 \times 9 = \square \rightarrow$ O	$11 \times 10 = \square \rightarrow$ H	
$1 \times 10 = \square \rightarrow$ N	$8 \times 8 = \square \rightarrow$ L	$5 \times 7 = \square \rightarrow$ D	$2 \times 6 = \square \rightarrow$ W
$9 \times 6 = \square \rightarrow$ C	$12 \times 11 = \square \rightarrow$ V	$12 \times 7 = \square \rightarrow$ E	
$1 \times 11 = \square \rightarrow$ U	$12 \times 12 = \square \rightarrow$ A	$2 \times 7 = \square \rightarrow$ G	
$8 \times 4 = \square \rightarrow$ P	$9 \times 12 = \square \rightarrow$ R	$2 \times 2 = \square \rightarrow$ S	
$2 \times 11 = \square \rightarrow$ I			

Scratch space:

CLUE 3

Fractions of a number

Only a fraction of the ship's computerized main map is still working. Calculating this fractional area gives us the coordinates where the crew fended off the intruder.

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

T						T							T				T			
32	4	13	19	31	32	34	30	30	13	33	32	34	13	39	32	31	13	39		
						T														
6	40	31	14	38	40	32	31													

$1/2$ of 64 = → T	$1/5$ of 95 = → Y	$2/3$ of 21 = → C
$4/8$ of 76 = → U	$1/8$ of 48 = → B	$6/10$ of 65 = → A
$4/6$ of 60 = → I	$2/4$ of 62 = → S	$3/4$ of 40 = → P
$4/5$ of 5 = → H	$1/6$ of 198 = → D	$4/8$ of 68 = → O
$4/8$ of 26 = → E		

Scratch space:

CLUE 4 Addition

The crew adds up the heavy metal bolts found lying around the damaged engine room. Finding the total sum of these bolts points us directly to the witness who spotted the suspect's hair color.

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

B						B										
5227	5248	9227	7502	5631	5770	5227	4064	2735	6382	5631	8848	9227	5248	3392	8848	2278
4064	6382	8209	5770	9060	8451	5770	5631	6382	5248	8848	9227	4064	9227	8451	7502	

$2117 + 3110 = \square \rightarrow \mathbf{B}$	$3154 + 5906 = \square \rightarrow \mathbf{O}$	$2393 + 3989 = \square \rightarrow \mathbf{E}$
$2078 + 3692 = \square \rightarrow \mathbf{T}$	$2334 + 5168 = \square \rightarrow \mathbf{G}$	$1145 + 1590 = \square \rightarrow \mathbf{U}$
$1209 + 1069 = \square \rightarrow \mathbf{S}$	$2550 + 1514 = \square \rightarrow \mathbf{L}$	$3538 + 5689 = \square \rightarrow \mathbf{I}$
$4462 + 3989 = \square \rightarrow \mathbf{N}$	$3077 + 5132 = \square \rightarrow \mathbf{F}$	$1932 + 3699 = \square \rightarrow \mathbf{H}$
$3440 + 1808 = \square \rightarrow \mathbf{R}$	$3725 + 5123 = \square \rightarrow \mathbf{A}$	$2003 + 1389 = \square \rightarrow \mathbf{W}$

Scratch space:

CLUE 5**Fractions of a number - the last clue**

Our sonar scans a fraction of the surrounding harbor floor for evidence. Finding the exact value of this fraction tells us where to look to confirm the suspect's true identity.

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:

$1/3 \text{ of } 6 = \boxed{}$

$4/6 \text{ of } 9 = \boxed{}$

$1/2 \text{ of } 10 = \boxed{}$

$1/6 \text{ of } 18 = \boxed{}$

$1/3 \text{ of } 12 = \boxed{}$

$1/3 \text{ of } 33 = \boxed{}$

$1/5 \text{ of } 40 = \boxed{}$

$2/6 \text{ of } 27 = \boxed{}$

$1/10 \text{ of } 10 = \boxed{}$

$2/4 \text{ of } 20 = \boxed{}$

$1/5 \text{ of } 60 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain cut the anchor chains, then slipped away in a smoke screen.
2. The villain flooded the ballast tanks, then dashed away with propeller boots.
3. The villain cut the anchor chains, then escaped with rocket flippers.
4. The villain overloaded the battery banks, then fled using laser flashlights.
5. The villain cut the anchor chains, then fled using laser flashlights.
6. The villain jammed the rudder gears, then escaped with rocket flippers.
7. The villain clogged the steam pipes, then escaped with rocket flippers.
8. The villain clogged the steam pipes, then fled using laser flashlights.
9. The villain jammed the rudder gears, then slipped away in a smoke screen.
10. The villain overloaded the battery banks, then escaped with rocket flippers.
11. The villain cut the anchor chains, then dashed away with propeller boots.
12. The villain clogged the steam pipes, then zoomed off using grappling hooks.

Answer Key

The Sinking of the Saniana

Culprit: Skipper Knox

clogging the steam pipes · rocket flippers · right handed glove · bright blue hair · distracted by sea biscuits

Trail: Start 21 → Clue 1 17 → Clue 2 11 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Subtraction): "THE VILLAIN DOES NOT USE SMOKE SCREENS"

6920 - 1841 = 5079 (T) · 9444 - 2651 = 6793 (H) · 8436 - 4982 = 3454 (O) · 3419 - 1724 = 1695 (N) · 3991 - 1570 = 2421 (R) · 8074 - 4658 = 3416 (K) · 7737 - 1888 = 5849 (V) · 8449 - 403 = 8046 (A) · 3974 - 2757 = 1217 (E) · 12664 - 3686 = 8978 (C) · 9546 - 945 = 8601 (M) · 5839 - 1926 = 3913 (U) · 10427 - 4941 = 5486 (S) · 6069 - 2782 = 3287 (D) · 3128 - 1928 = 1200 (L) · 4764 - 157 = 4607 (I)

Clue 2 (Multiplication facts (1-12)): "THE SUSPECT WORE A RIGHT HANDED GLOVE"

10 × 7 = 70 (T) · 9 × 9 = 81 (O) · 11 × 10 = 110 (H) · 1 × 10 = 10 (N) · 8 × 8 = 64 (L) · 5 × 7 = 35 (D) · 2 × 6 = 12 (W) · 9 × 6 = 54 (C) · 12 × 11 = 132 (V) · 12 × 7 = 84 (E) · 1 × 11 = 11 (U) · 12 × 12 = 144 (A) · 2 × 7 = 14 (G) · 8 × 4 = 32 (P) · 9 × 12 = 108 (R) · 2 × 2 = 4 (S) · 2 × 11 = 22 (I)

Clue 3 (Fractions of a number): "THEY STOPPED TO EAT SEA BISCUITS"

1/2 of 64 = 32 (T) · 1/5 of 95 = 19 (Y) · 2/3 of 21 = 14 (C) · 4/8 of 76 = 38 (U) · 1/8 of 48 = 6 (B) · 6/10 of 65 = 39 (A) · 4/6 of 60 = 40 (I) · 2/4 of 62 = 31 (S) · 3/4 of 40 = 30 (P) · 4/5 of 5 = 4 (H) · 1/6 of 198 = 33 (D) · 4/8 of 68 = 34 (O) · 4/8 of 26 = 13 (E)

Clue 4 (Addition): "BRIGHT BLUE HAIR WAS LEFT ON THE RAILING"

2117 + 3110 = 5227 (B) · 3154 + 5906 = 9060 (O) · 2393 + 3989 = 6382 (E) · 2078 + 3692 = 5770 (T) · 2334 + 5168 = 7502 (G) · 1145 + 1590 = 2735 (U) · 1209 + 1069 = 2278 (S) · 2550 + 1514 = 4064 (L) · 3538 + 5689 = 9227 (I) · 4462 + 3989 = 8451 (N) · 3077 + 5132 = 8209 (F) · 1932 + 3699 = 5631 (H) · 3440 + 1808 = 5248 (R) · 3725 + 5123 = 8848 (A) · 2003 + 1389 = 3392 (W)

Clue 5 (Fractions of a number): surviving statement is box 7 → Skipper Knox

1/3 of 6 = 2 · 4/6 of 9 = 6 · 1/2 of 10 = 5 · 1/6 of 18 = 3 · 1/3 of 12 = 4 · 1/3 of 33 = 11 · 1/5 of 40 = 8 · 2/6 of 27 = 9 · 1/10 of 10 = 1 · 2/4 of 20 = 10 · 1/5 of 60 = 12