The Case of the Sunken Beacon

Grade 5 math · Multiplication, Fractions of a number, Order of operations, Rounding, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

A rogue diver sabotaged the main underwater beacon at Sapphire Cove! Detective, examine the gear logs and unmask the culprit before the storm arrives.

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 Rogue Diver is _____

Possible suspects

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

NAME	DIVING GEAR	SPECIALTY TOOL	DOMINANT HAND	HEADGEAR	DEFENSE WEAKNESS
Diver Sam	Anchor Blasters	Laser Cutter	Left Handed	Bare Head	Magnetic Clamps
Diver Paige	Grapple Hooks	Bubble Shield	Left Handed	Neoprene Hood	High Pitch Whistles
Analyst Iris	Thermal Suits	Laser Cutter	Right Handed	Bare Head	High Pitch Whistles
Dr Marina Cruz	Thermal Suits	Decoy Flare	Left Handed	Diving Cap	Bright Flashlights
Tech Maya	Thermal Suits	Net Launcher	Right Handed	Neoprene Hood	Magnetic Clamps
Captain Vance	Sonic Sonar	Bubble Shield	Left Handed	Bare Head	High Pitch Whistles
Engineer Leo	Sonic Sonar	Decoy Flare	Left Handed	Neoprene Hood	Magnetic Clamps
Professor Seth	Anchor Blasters	Sea Glider	Right Handed	Bare Head	Bright Flashlights
Specialist Eli	Grapple Hooks	Decoy Flare	Left Handed	Diving Cap	High Pitch Whistles
Officer Jade	Anchor Blasters	Sea Glider	Right Handed	Bare Head	High Pitch Whistles
Sub Master Kai	Grapple Hooks	Bubble Shield	Left Handed	Diving Cap	Bright Flashlights
Explorer Nora	Thermal Suits	Decoy Flare	Left Handed	Neoprene Hood	Bright Flashlights
Pilot Cole	Thermal Suits	Sea Glider	Left Handed	Diving Cap	High Pitch Whistles
Scuba Liam	Plasma Torches	Net Launcher	Left Handed	Diving Cap	Bright Flashlights
Officer Blake	Plasma Torches	Decoy Flare	Left Handed	Diving Cap	Bright Flashlights
Navigator Tess	Grapple Hooks	Laser Cutter	Left Handed	Diving Cap	Bright Flashlights
Mechanic Wade	Anchor Blasters	Laser Cutter	Left Handed	Diving Cap	High Pitch Whistles
Pilot Jax	Plasma Torches	Laser Cutter	Left Handed	Bare Head	High Pitch Whistles
Commander Reed	Plasma Torches	Sea Glider	Left Handed	Neoprene Hood	Bright Flashlights
Researcher Finn	Thermal Suits	Bubble Shield	Right Handed	Diving Cap	Bright Flashlights
Operator Tara	Anchor Blasters	Net Launcher	Left Handed	Neoprene Hood	Bright Flashlights

CLUE 1 Multiplication facts (1-12)

> To check the sonar grid, the team counts rows of underwater sensors.

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

T							T							T					
14	81	64	72	121	120	3	44	27	14	6	70	64	144	54	70	14			
121	144	64	10	54	64	14	120	10	121	54	72	81	64	44					

7 × 2 = ☐ → T

10 × 12 = ☐ → L

3 × 9 = ☐ → I

9 × 6 = ☐ → N

3 × 2 = ☐ → D

1 × 10 = ☐ → A

8 × 9 = ☐ → C

11 × 11 = ☐ → U

4 × 11 = ☐ → R

7 × 10 = ☐ → O

12 × 12 = ☐ → S

9 × 9 = ☐ → H

1 × 3 = ☐ → P

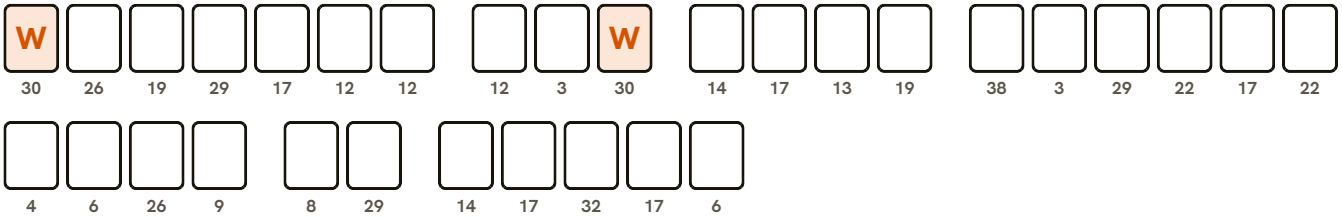
8 × 8 = ☐ → E

Scratch space:

CLUE 2 Fractions of a number

The submarine manager reviews a fraction of the fuel logs from the morning dive.

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



1/2 of 60 = ☐ → W

1/10 of 140 = ☐ → L

2/10 of 65 = ☐ → F

3/10 of 20 = ☐ → R

4/10 of 95 = ☐ → H

1/6 of 24 = ☐ → G

8/10 of 10 = ☐ → O

2/10 of 160 = ☐ → V

4/6 of 33 = ☐ → D

4/8 of 58 = ☐ → N

3/5 of 20 = ☐ → S

1/5 of 95 = ☐ → T

4/10 of 65 = ☐ → I

1/10 of 90 = ☐ → P

1/6 of 18 = ☐ → A

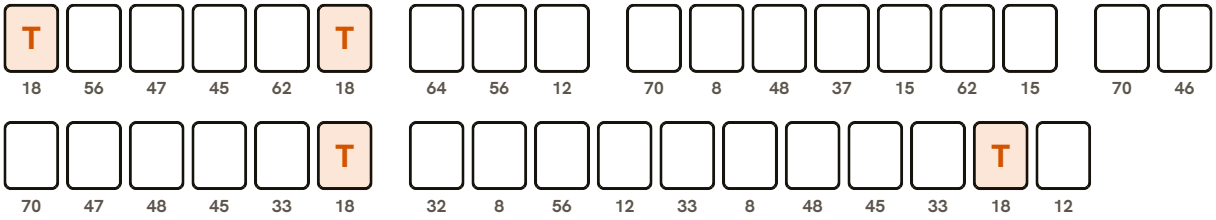
2/4 of 34 = ☐ → E

Scratch space:

CLUE 3 Order of operations

> Following a multi step safety sequence, the crew calculates total station voltage.

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



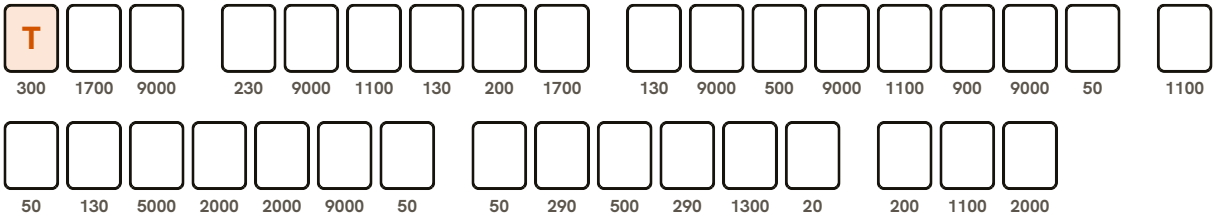
12 × 4 - 30 = ☐ → T	15 + 6 × 3 = ☐ → H	7 × 9 - 7 = ☐ → A
58 + 6 × 2 = ☐ → B	11 + 2 × 2 = ☐ → D	12 × 6 - 25 = ☐ → R
7 × 6 - 5 = ☐ → N	32 + 7 × 2 = ☐ → Y	4 + 2 × 2 = ☐ → L
7 × 12 - 20 = ☐ → W	29 + 8 × 2 = ☐ → G	10 × 6 - 12 = ☐ → I
3 + 3 × 3 = ☐ → S	7 × 6 - 10 = ☐ → F	8 × 9 - 10 = ☐ → E

Scratch space:

CLUE 4 Rounding

The station radar screen only displays rounded depth readings.

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



Round 348 to the nearest hundred ☐ → **T**

Round 20 to the nearest ten ☐ → **G**

Round 132 to the nearest ten ☐ → **R**

Round 917 to the nearest hundred ☐ → **L**

Round 4,736 to the nearest thousand ☐ → **O**

Round 546 to the nearest hundred ☐ → **V**

Round 1,291 to the nearest hundred ☐ → **N**

Round 54 to the nearest ten ☐ → **D**

Round 246 to the nearest hundred ☐ → **C**

Round 2,310 to the nearest thousand ☐ → **P**

Round 292 to the nearest ten ☐ → **I**

Round 1,077 to the nearest hundred ☐ → **A**

Round 1,669 to the nearest hundred ☐ → **H**

Round 230 to the nearest ten ☐ → **S**

Round 9,442 to the nearest thousand ☐ → **E**

Scratch space:

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

> The divers split the remaining air canisters equally across teams.

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:

28 ÷ 4 = ☐	40 ÷ 5 = ☐	70 ÷ 7 = ☐	63 ÷ 7 = ☐	11 ÷ 1 = ☐
72 ÷ 12 = ☐	7 ÷ 7 = ☐	27 ÷ 9 = ☐	18 ÷ 9 = ☐	20 ÷ 5 = ☐
35 ÷ 7 = ☐				

Step 2 - cross out the sentence with each answer:

1. The villain welded the hatch shut, then sliced open the emergency tank.
2. The villain disabled the thermal suit power, then tangled the research lines.
3. The villain disabled the thermal suit power, then deflected the security sensors.
4. The villain disabled the thermal suit power, then zoomed away on a scooter.
5. The villain jammed the sonar array, then sliced open the emergency tank.
6. The villain cut the anchor cables, then launched a distracting signal.
7. The villain disabled the thermal suit power, then launched a distracting signal.
8. The villain snapped the winch ropes, then sliced open the emergency tank.
9. The villain cut the anchor cables, then zoomed away on a scooter.
10. The villain welded the hatch shut, then launched a distracting signal.
11. The villain jammed the sonar array, then tangled the research lines.
12. The villain snapped the winch ropes, then deflected the security sensors.

TEACHER / PARENT

Answer Key

The Case of the Sunken Beacon

Culprit: Sub Master Kai

Grapple Hooks · Bubble Shield · Left Handed · Diving Cap · Bright Flashlights

Trail: Start 21 → Clue 1 18 → Clue 2 14 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE CULPRIT DOES NOT USE A NET LAUNCHER"

7 × 2 = 14 (T) · 10 × 12 = 120 (L) · 3 × 9 = 27 (I) · 9 × 6 = 54 (N) · 3 × 2 = 6 (D) · 1 × 10 = 10 (A) · 8 × 9 = 72 (C) · 11 × 11 = 121 (U) · 4 × 11 = 44 (R) · 7 × 10 = 70 (O) · 12 × 12 = 144 (S) · 9 × 9 = 81 (H) · 1 × 3 = 3 (P) · 8 × 8 = 64 (E)

Clue 2 (Fractions of a number): "WITNESS SAW LEFT HANDED GRIP ON LEVER"

1/2 of 60 = 30 (W) · 1/10 of 140 = 14 (L) · 2/10 of 65 = 13 (F) · 3/10 of 20 = 6 (R) · 4/10 of 95 = 38 (H) · 1/6 of 24 = 4 (G) · 8/10 of 10 = 8 (O) · 2/10 of 160 = 32 (V) · 4/6 of 33 = 22 (D) · 4/8 of 58 = 29 (N) · 3/5 of 20 = 12 (S) · 1/5 of 95 = 19 (T) · 4/10 of 65 = 26 (I) · 1/10 of 90 = 9 (P) · 1/6 of 18 = 3 (A) · 2/4 of 34 = 17 (E)

Clue 3 (Order of operations): "TARGET WAS BLINDED BY BRIGHT FLASHLIGHTS"

12 × 4 - 30 = 18 (T) · 15 + 6 × 3 = 33 (H) · 7 × 9 - 7 = 56 (A) · 58 + 6 × 2 = 70 (B) · 11 + 2 × 2 = 15 (D) · 12 × 6 - 25 = 47 (R) · 7 × 6 - 5 = 37 (N) · 32 + 7 × 2 = 46 (Y) · 4 + 2 × 2 = 8 (L) · 7 × 12 - 20 = 64 (W) · 29 + 8 × 2 = 45 (G) · 10 × 6 - 12 = 48 (I) · 3 + 3 × 3 = 12 (S) · 7 × 6 - 10 = 32 (F) · 8 × 9 - 10 = 62 (E)

Clue 4 (Rounding): "THE SEARCH REVEALED A DROPPED DIVING CAP"

Round 348 to the nearest hundred = 300 (T) · Round 20 to the nearest ten = 20 (G) · Round 132 to the nearest ten = 130 (R) · Round 917 to the nearest hundred = 900 (L) · Round 4,736 to the nearest thousand = 5000 (O) · Round 546 to the nearest hundred = 500 (V) · Round 1,291 to the nearest hundred = 1300 (N) · Round 54 to the nearest ten = 50 (D) · Round 246 to the nearest hundred = 200 (C) · Round 2,310 to the nearest thousand = 2000 (P) · Round 292 to the nearest ten = 290 (I) · Round 1,077 to the nearest hundred = 1100 (A) · Round 1,669 to the nearest hundred = 1700 (H) · Round 230 to the nearest ten = 230 (S) · Round 9,442 to the nearest thousand = 9000 (E)

Clue 5 (Division facts (1-12)): surviving statement is box 12 → Sub Master Kai

28 ÷ 4 = 7 · 40 ÷ 5 = 8 · 70 ÷ 7 = 10 · 63 ÷ 7 = 9 · 11 ÷ 1 = 11 · 72 ÷ 12 = 6 · 7 ÷ 7 = 1 · 27 ÷ 9 = 3 · 18 ÷ 9 = 2 · 20 ÷ 5 = 4 · 35 ÷ 7 = 5