



The Trench Archive Heist

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 7-9

Detective: _____ Date: _____

The waterproof vault has been breached! The legendary Abyssal Codex, containing centuries of forgotten oceanic maps, has been stolen from its pedestal. A trail of bubbles and damp footprints leads away from the scene. It is up to you to analyze the physical clues, decode the security logs, and identify which of the deep-sea researchers or submarine pilots took the precious book before they escape to the surface.

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 Tome Raider is _____

Possible suspects

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

NAME	PRIMARY MARINE ABILITY	SPECIALIZED DEEP-SEA GEAR	HANDEDNESS OBSERVATION	TRACE TRACE EVIDENCE FOUND	TACTICAL COUNTERMEASURE
Jules Verne	Kelp Camouflage	Bioluminescent Lantern	Right-handed writing	Silver seal fur	Saltwater-dissolving nets
Yann Martel	Sonar Reading	Submersible Scooter	Right-handed writing	Sea-weed fibers	Saltwater-dissolving nets
Joseph Conrad	Deep-Sea Diving Suit	Bioluminescent Lantern	Left-handed writing	Golden mermaid hair	High-intensity flashlights
Homer	Ink-Jet Propulsion	Pressure-Proof Helmet	Right-handed writing	Silver seal fur	High-intensity flashlights
Henry Beston	Sonar Reading	Coral Harpoon	Right-handed writing	Sea-weed fibers	High-intensity flashlights
Peter Benchley	Ink-Jet Propulsion	Submersible Scooter	Right-handed writing	Golden mermaid hair	Sonic whale calls
Jacques Cousteau	Deep-Sea Diving Suit	Coral Harpoon	Right-handed writing	Sea-weed fibers	Saltwater-dissolving nets
Ishmael	Sonar Reading	Pressure-Proof Helmet	Right-handed writing	Silver seal fur	Sonic whale calls
Charles Darwin	Ink-Jet Propulsion	Pressure-Proof Helmet	Right-handed writing	Silver seal fur	Saltwater-dissolving nets
Ernest Hemingway	Deep-Sea Diving Suit	Coral Harpoon	Left-handed writing	Silver seal fur	Saltwater-dissolving nets
Clive Cussler	Kelp Camouflage	Coral Harpoon	Right-handed writing	Golden mermaid hair	Saltwater-dissolving nets
Samuel Coleridge	Ink-Jet Propulsion	Bioluminescent Lantern	Right-handed writing	Silver seal fur	Saltwater-dissolving nets
Sylvia Earle	Deep-Sea Diving Suit	Pressure-Proof Helmet	Right-handed writing	Sea-weed fibers	Saltwater-dissolving nets
Captain Nemo	Kelp Camouflage	Waterproof Tablet	Left-handed writing	Sea-weed fibers	Saltwater-dissolving nets
Ahab	Ink-Jet Propulsion	Submersible Scooter	Right-handed writing	Silver seal fur	Saltwater-dissolving nets
Rachel Carson	Ink-Jet Propulsion	Bioluminescent Lantern	Right-handed writing	Sea-weed fibers	Sonic whale calls
Herman Melville	Deep-Sea Diving Suit	Waterproof Tablet	Left-handed writing	Sea-weed fibers	Sonic whale calls
Jack London	Ink-Jet Propulsion	Waterproof Tablet	Left-handed writing	Sea-weed fibers	High-intensity flashlights
Arthur C Clarke	Sonar Reading	Waterproof Tablet	Right-handed writing	Silver seal fur	High-intensity flashlights
Mary Anning	Ink-Jet Propulsion	Waterproof Tablet	Right-handed writing	Sea-weed fibers	High-intensity flashlights
William Beebe	Deep-Sea Diving Suit	Waterproof Tablet	Right-handed writing	Silver seal fur	Saltwater-dissolving nets

CLUE 1

An inventory of the archive's ledger books was partially ruined by seawater. To narrow down the suspect's gear, calculate what fraction of the ledger books remains completely dry and readable.

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

Diagram showing four number pyramids, each with 4 levels (1 box at the top, 2 boxes in the second level, 3 boxes in the third level, and 4 boxes in the bottom level). The boxes are numbered 1 to 12 from left to right, top to bottom. The boxes are colored orange if they contain the letter 'T'.

Pyramid 1: Box 1 is orange with 'T'. Other boxes are empty.

Pyramid 2: Box 12 is orange with 'T'. Other boxes are empty.

Pyramid 3: Box 4 is orange with 'T'. Other boxes are empty.

Pyramid 4: Box 1 is orange with 'T' and Box 12 is orange with 'T'. Other boxes are empty.

2/4 of 12 = → **T**

8/10 of 10 = → **W**

4/6 of 33 = → **L**

$\frac{1}{4}$ of 104 = $\rightarrow$ ☒

9/10 of 10 = → **D**

$\frac{1}{5}$ of 200 = $\rightarrow$ **S**

$1/5$ of 25 = $\rightarrow$ **E**

2/8 of 116 = → **P**

$\frac{1}{4}$ of 124 = $\rightarrow$ **A**

$1/8$ of 88 = $\rightarrow$ ☒

$\frac{1}{4}$ of 152 = $\rightarrow$ **F**

$2/10$ of $135 = \square \rightarrow \boxed{\text{B}}$

$4/10$ of $60 = \square \rightarrow \boxed{\text{I}}$

$$\frac{1}{2} \text{ of } 72 = \boxed{} \rightarrow \boxed{\text{H}}$$

$2/8$ of 48 = $\rightarrow$ **N**

$1/6$ of 198 = $\rightarrow$ **R**

$\frac{1}{2}$ of 70 = → **U**

Scratch space:

CLUE 2

Order of operations

The biometric security lock at the escape hatch requires entering the correct operational sequence to bypass. Solve this order of operations puzzle to unlock the footage showing which hand the thief used.

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

T 45	22	47	T 45	22	54	47	71	22	47	25	27	T 45	22	47	21	47	41
54	41	T 45	22	47	54	49	49	54	63	22	T 45	22	32	41	27		

$27 + 9 \times 2 = \square \rightarrow \text{[T]}$

$12 + 5 \times 2 = \square \rightarrow \text{[H]}$

$11 \times 6 - 25 = \square \rightarrow \text{[N]}$

$59 + 6 \times 2 = \square \rightarrow \text{[F]}$

$12 \times 3 - 9 = \square \rightarrow \text{[D]}$

$12 + 5 \times 7 = \square \rightarrow \text{[E]}$

$7 \times 5 - 10 = \square \rightarrow \text{[L]}$

$17 + 3 \times 5 = \square \rightarrow \text{[A]}$

$7 \times 10 - 21 = \square \rightarrow \text{[R]}$

$6 \times 12 - 18 = \square \rightarrow \text{[I]}$

$9 + 6 \times 2 = \square \rightarrow \text{[P]}$

$43 + 5 \times 4 = \square \rightarrow \text{[G]}$

Scratch space:

CLUE 3

Multiplication facts (1-12)

A swarm of glowing deep-sea jellyfish was disturbed during the escape. Multiply the rows of glowing cells to determine the total energy output, which reveals the suspect's biological weakness.

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

28 96 14 56 44 42 42 7 44 50 48 7 24 28 5 7 33 33 14 72

11 27 72 44 24 24 70 42 56 44 50 1 50 14 28 24

$$4 \times 7 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$11 \times 1 = \boxed{} \rightarrow \boxed{\mathbf{B}}$$

$4 \times 12 = \boxed{} \rightarrow \boxed{\mathbf{W}}$

$3 \times 11 = \boxed{} \rightarrow \boxed{\text{P}}$

$7 \times 10 = \boxed{} \rightarrow \boxed{0}$

$3 \times 9 = \boxed{} \rightarrow \boxed{\text{Y}}$

$7 \times 6 = \square \rightarrow \boxed{\text{L}}$

$7 \times 1 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$10 \times 5 = \boxed{} \rightarrow \boxed{\text{N}}$

$7 \times 8 = \boxed{} \rightarrow \boxed{\mathbf{V}}$

$8 \times 12 = \boxed{} \rightarrow \boxed{\text{H}}$

$5 \times 1 = \boxed{} \rightarrow \boxed{\mathbf{R}}$

$2 \times 7 = \square \rightarrow \boxed{\mathbf{E}}$

$12 \times 6 = \square \rightarrow \mathbf{D}$

$4 \times 6 = \square \rightarrow \boxed{\text{S}}$

$1 \times 1 = \square \rightarrow \boxed{\mathbf{G}}$

$11 \times 4 = \boxed{} \rightarrow \boxed{I}$

Scratch space:

CLUE 4 Rounding

The submarine's automated sonar radar only displays distance measurements rounded to the nearest ten. Round these radar readings correctly to pinpoint the exact location of the hair fibers dropped during the getaway.

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

W																		
90	1700	110	1700	500	1300	1100	1700	110	1700	370	30	300	1700	500	1700	3700	1300	170

3700	300	230	1100	1700	110	3700	1700	900	230	170	4300	110

Round 90 to the nearest ten → **W**

Round 1,136 to the nearest hundred → **V**

Round 1,305 to the nearest hundred → **O**

Round 32 to the nearest ten → **P**

Round 522 to the nearest hundred → **C**

Round 109 to the nearest ten → **R**

Round 369 to the nearest ten → **D**

Round 234 to the nearest ten → **L**

Round 170 to the nearest ten → **F**

Round 3,749 to the nearest hundred → **S**

Round 301 to the nearest hundred → **I**

Round 948 to the nearest hundred → **A**

Round 1,743 to the nearest hundred → **E**

Round 4,306 to the nearest hundred → **U**

Scratch space:

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

To coordinate the search grid, we must share the remaining oxygen reserves equally among our recovery vessels. Divide the total liters of air to find the coordinates of the suspect's final escape vector.

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:

$27 \div 9 = \boxed{}$

$48 \div 12 = \boxed{}$

$108 \div 9 = \boxed{}$

$18 \div 9 = \boxed{}$

$35 \div 5 = \boxed{}$

$8 \div 1 = \boxed{}$

$63 \div 7 = \boxed{}$

$35 \div 7 = \boxed{}$

$9 \div 9 = \boxed{}$

$24 \div 4 = \boxed{}$

$70 \div 7 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain employs sonar reading to scan the secret archives, then adjusts a pressure-proof helmet before escaping.
2. The villain seals their deep-sea diving suit to plunge into the abyss, then boards a submersible scooter to make a fast getaway.
3. The villain uses ink-jet propulsion to glide through the shelves, then swings a bioluminescent lantern to read in the dark.
4. The villain uses ink-jet propulsion to glide through the shelves, then boards a submersible scooter to make a fast getaway.
5. The villain seals their deep-sea diving suit to plunge into the abyss, then adjusts a pressure-proof helmet before escaping.
6. The villain employs sonar reading to scan the secret archives, then taps a waterproof tablet to log the stolen data.
7. The villain activates kelp camouflage to blend into the ocean walls, then taps a waterproof tablet to log the stolen data.
8. The villain employs sonar reading to scan the secret archives, then brandishes a coral harpoon to keep the guards back.
9. The villain uses ink-jet propulsion to glide through the shelves, then brandishes a coral harpoon to keep the guards back.
10. The villain activates kelp camouflage to blend into the ocean walls, then boards a submersible scooter to make a fast getaway.
11. The villain activates kelp camouflage to blend into the ocean walls, then swings a bioluminescent lantern to read in the dark.
12. The villain uses ink-jet propulsion to glide through the shelves, then adjusts a pressure-proof helmet before escaping.

Answer Key

The Trench Archive Heist

Culprit: Jules Verne

Kelp Camouflage · Bioluminescent Lantern · Right-handed writing · Silver seal fur · Saltwater-dissolving nets

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 WATERPROOF TABLET"

$\frac{2}{4}$ of 12 = 6 (T) · $\frac{8}{10}$ of 10 = 8 (W) · $\frac{4}{6}$ of 33 = 22 (L) · $\frac{1}{4}$ of 104 = 26 (O) · $\frac{9}{10}$ of 10 = 9 (D) · $\frac{1}{5}$ of 200 = 40 (S) · $\frac{1}{5}$ of 25 = 5 (E) · $\frac{2}{8}$ of 116 = 29 (P) · $\frac{1}{4}$ of 124 = 31 (A) · $\frac{1}{8}$ of 88 = 11 (V) · $\frac{1}{4}$ of 152 = 38 (F) · $\frac{2}{10}$ of 135 = 27 (B) · $\frac{4}{10}$ of 60 = 24 (I) · $\frac{1}{2}$ of 72 = 36 (H) · $\frac{2}{8}$ of 48 = 12 (N) · $\frac{1}{6}$ of 198 = 33 (R) · $\frac{1}{2}$ of 70 = 35 (U)

Clue 2 (Order of operations): "THE THIEF HELD THE PEN IN THEIR RIGHT HAND"

$27 + 9 \times 2 = 45$ (T) · $12 + 5 \times 2 = 22$ (H) · $11 \times 6 - 25 = 41$ (N) · $59 + 6 \times 2 = 71$ (F) · $12 \times 3 - 9 = 27$ (D) · $12 + 5 \times 7 = 47$ (E) · $7 \times 5 - 10 = 25$ (L) · $17 + 3 \times 5 = 32$ (A) · $7 \times 10 - 21 = 49$ (R) · $6 \times 12 - 18 = 54$ (I) · $9 + 6 \times 2 = 21$ (P) · $43 + 5 \times 4 = 63$ (G)

Clue 3 (Multiplication facts (1-12)): "THE VILLAIN WAS TRAPPED BY DISSOLVING NETS"

$4 \times 7 = 28$ (T) · $11 \times 1 = 11$ (B) · $4 \times 12 = 48$ (W) · $3 \times 11 = 33$ (P) · $7 \times 10 = 70$ (O) · $3 \times 9 = 27$ (Y) · $7 \times 6 = 42$ (L) · $7 \times 1 = 7$ (A) · $10 \times 5 = 50$ (N) · $7 \times 8 = 56$ (V) · $8 \times 12 = 96$ (H) · $5 \times 1 = 5$ (R) · $2 \times 7 = 14$ (E) · $12 \times 6 = 72$ (D) · $4 \times 6 = 24$ (S) · $1 \times 1 = 1$ (G) · $11 \times 4 = 44$ (I)

Clue 4 (Rounding): "WE RECOVERED PIECES OF SILVER SEAL FUR"

Round 90 to the nearest ten = 90 (W) · Round 1,136 to the nearest hundred = 1100 (V) · Round 1,305 to the nearest hundred = 1300 (O) · Round 32 to the nearest ten = 30 (P) · Round 522 to the nearest hundred = 500 (C) · Round 109 to the nearest ten = 110 (R) · Round 369 to the nearest ten = 370 (D) · Round 234 to the nearest ten = 230 (L) · Round 170 to the nearest ten = 170 (F) · Round 3,749 to the nearest hundred = 3700 (S) · Round 301 to the nearest hundred = 300 (I) · Round 948 to the nearest hundred = 900 (A) · Round 1,743 to the nearest hundred = 1700 (E) · Round 4,306 to the nearest hundred = 4300 (U)

Clue 5 (Division facts (1-12)): surviving statement is box 11 → Jules Verne

$27 \div 9 = 3$ · $48 \div 12 = 4$ · $108 \div 9 = 12$ · $18 \div 9 = 2$ · $35 \div 5 = 7$ · $8 \div 1 = 8$ · $63 \div 7 = 9$ · $35 \div 7 = 5$ · $9 \div 9 = 1$ · $24 \div 4 = 6$ · $70 \div 7 = 10$