



The Case of the Golden Kelp

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

Detective: _____ Date: _____

The legendary Golden Kelp Codex has been stolen from the deepest shelf of the Great Coral Library! Help the Reef Patrol trace the clues, solve the math, and identify the thief before they escape to the deepest ocean trench.

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 Thief is _____

Possible suspects

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

NAME	SPECIALTY GEAR	BACKUP EQUIPMENT	WRITING STYLE	DIVING SUIT COLOR	DROPPED SNACK
Cindy Van Dover	Deep Sea Sonar	Diver Helmet	Writes Right Handed	Blue Diving Suit	Dried Krill Chips
Robert Ballard	Clam Shell Tablet	Bioluminescent Lamp	Writes Left Handed	Blue Diving Suit	Salty Sea Grass
Ruth Turner	Deep Sea Sonar	Bioluminescent Lamp	Writes Left Handed	Blue Diving Suit	Salty Sea Grass
Enric Sala	Kelp Bookmark	Submarine Glider	Writes Left Handed	Orange Diving Suit	Plankton Puffs
Daniel Pauly	Coral Magnifier	Bioluminescent Lamp	Writes Right Handed	Blue Diving Suit	Dried Krill Chips
Samuel Stillman	Clam Shell Tablet	Submarine Glider	Writes Right Handed	Green Diving Suit	Dried Krill Chips
Henry Bigelow	Kelp Bookmark	Waterproof Notepad	Writes Right Handed	Orange Diving Suit	Dried Krill Chips
Sylvia Earle	Kelp Bookmark	Waterproof Notepad	Writes Left Handed	Blue Diving Suit	Dried Krill Chips
Jane Lubchenco	Deep Sea Sonar	Waterproof Notepad	Writes Right Handed	Blue Diving Suit	Salty Sea Grass
Edith Widder	Deep Sea Sonar	Algae Satchel	Writes Right Handed	Blue Diving Suit	Dried Krill Chips
Mary Sears	Coral Magnifier	Waterproof Notepad	Writes Left Handed	Blue Diving Suit	Plankton Puffs
Steve OShea	Squid Ink Pen	Submarine Glider	Writes Right Handed	Blue Diving Suit	Dried Krill Chips
Ayana Johnson	Kelp Bookmark	Bioluminescent Lamp	Writes Right Handed	Green Diving Suit	Dried Krill Chips
Hans Hass	Clam Shell Tablet	Waterproof Notepad	Writes Right Handed	Green Diving Suit	Dried Krill Chips
James Cameron	Clam Shell Tablet	Submarine Glider	Writes Left Handed	Blue Diving Suit	Salty Sea Grass
Eugenie Clark	Squid Ink Pen	Algae Satchel	Writes Right Handed	Green Diving Suit	Plankton Puffs
William Beebe	Squid Ink Pen	Bioluminescent Lamp	Writes Right Handed	Green Diving Suit	Salty Sea Grass
Nancy Rabalais	Deep Sea Sonar	Submarine Glider	Writes Left Handed	Green Diving Suit	Salty Sea Grass
Alistair Hardy	Clam Shell Tablet	Bioluminescent Lamp	Writes Left Handed	Green Diving Suit	Plankton Puffs
Charles Darwin	Coral Magnifier	Waterproof Notepad	Writes Left Handed	Blue Diving Suit	Dried Krill Chips
Marie Tharp	Deep Sea Sonar	Submarine Glider	Writes Right Handed	Blue Diving Suit	Dried Krill Chips

CLUE 1

Fractions of a number

To begin the search, we must calculate the fraction of glowing coral pages left intact on the bookshelf.

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

T			T														
22	19	20	22	19	18	20	37	14	31	20	10	17	31	22			
					T									T			
36	11	32	32	35	22	19	20	11	25	9	11	20	10	11	22	36	19

$$2/3 \text{ of } 33 = \square \rightarrow \text{T}$$

$$2/6 \text{ of } 108 = \square \rightarrow \text{C}$$

$$1/4 \text{ of } 128 = \square \rightarrow \text{R}$$

$$1/3 \text{ of } 33 = \square \rightarrow \text{A}$$

$$1/3 \text{ of } 30 = \square \rightarrow \text{S}$$

$$3/6 \text{ of } 62 = \square \rightarrow \text{O}$$

$$1/2 \text{ of } 50 = \square \rightarrow \text{L}$$

$$2/10 \text{ of } 85 = \square \rightarrow \text{N}$$

$$4/5 \text{ of } 25 = \square \rightarrow \text{E}$$

$$1/4 \text{ of } 148 = \square \rightarrow \text{F}$$

$$1/5 \text{ of } 45 = \square \rightarrow \text{G}$$

$$6/10 \text{ of } 30 = \square \rightarrow \text{I}$$

$$1/2 \text{ of } 70 = \square \rightarrow \text{Y}$$

$$3/6 \text{ of } 28 = \square \rightarrow \text{D}$$

$$2/10 \text{ of } 95 = \square \rightarrow \text{H}$$

Scratch space:

CLUE 2

Order of operations

The library security system can be unlocked only by evaluating a complex sequence of bubble currents.

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

W				W												
47	37	30	52	47	69	34	36	55	6	55	52	22	73	37	73	
30	11	8	73	36	37	30	39	22	6	55	37	49	39	26	37	69

$11 \times 6 - 19 = \square \rightarrow \boxed{\text{W}}$

$4 + 7 \times 5 = \square \rightarrow \boxed{\text{O}}$

$3 + 4 \times 2 = \square \rightarrow \boxed{\text{M}}$

$11 \times 6 - 29 = \square \rightarrow \boxed{\text{E}}$

$18 + 2 \times 4 = \square \rightarrow \boxed{\text{V}}$

$10 \times 6 - 8 = \square \rightarrow \boxed{\text{A}}$

$9 \times 9 - 12 = \square \rightarrow \boxed{\text{R}}$

$2 + 2 \times 2 = \square \rightarrow \boxed{\text{T}}$

$40 + 5 \times 3 = \square \rightarrow \boxed{\text{H}}$

$4 + 2 \times 2 = \square \rightarrow \boxed{\text{U}}$

$18 + 9 \times 2 = \square \rightarrow \boxed{\text{G}}$

$10 \times 7 - 21 = \square \rightarrow \boxed{\text{C}}$

$9 \times 10 - 17 = \square \rightarrow \boxed{\text{D}}$

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

$5 \times 7 - 1 = \square \rightarrow \boxed{\text{I}}$

$2 \times 12 - 2 = \square \rightarrow \boxed{\text{N}}$

Scratch space:

CLUE 3

Multiplication facts (1-12)

We need to multiply the rows of sea shells to find how many seaweed bookmarks were left behind.

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

T																
55	121	42	28	144	42	16	42	28	99	42	108	108	42	3	66	88
3	4	49	42	3	81	4	49	108	108	144	121	49	2	28		

$11 \times 5 =$

→ T

$11 \times 8 =$

→ F

$9 \times 9 =$

→ K

$4 \times 1 =$

→ R

$11 \times 6 =$

→ O

$1 \times 3 =$

→ D

$4 \times 4 =$

→ N

$7 \times 6 =$

→ E

$4 \times 7 =$

→ S

$9 \times 12 =$

→ L

$11 \times 11 =$

→ H

$12 \times 12 =$

→ C

$9 \times 11 =$

→ M

$7 \times 7 =$

→ I

$2 \times 1 =$

→ P

Scratch space:

CLUE 4 Rounding

Our sonar scanner gives an estimate of the suspect's escape route, but the screen only shows rounded figures.

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

T																
7000	90	5000	5000	370	5000	290	30	50	500	3700	130	130	5000	50	2900	
													T	T		
200	1100	3000	5000	50	110	230	110	370	700	4300	3000	110	7000	7000	90	500
															5000	2900
															50	

Round 6,574 to the nearest thousand → **T**

Round 191 to the nearest hundred → **B**

Round 4,521 to the nearest thousand → **E**

Round 128 to the nearest ten → **P**

Round 3,652 to the nearest hundred → **O**

Round 49 to the nearest ten → **D**

Round 226 to the nearest ten → **V**

Round 368 to the nearest ten → **N**

Round 4,288 to the nearest hundred → **S**

Round 114 to the nearest ten → **I**

Round 746 to the nearest hundred → **G**

Round 3,257 to the nearest thousand → **U**

Round 288 to the nearest ten → **M**

Round 2,915 to the nearest hundred → **A**

Round 34 to the nearest ten → **Y**

Round 540 to the nearest hundred → **R**

Round 1,112 to the nearest hundred → **L**

Round 90 to the nearest ten → **H**

Scratch space:

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

We must divide a bucket of bioluminescent ink tablets equally among the patrol teams to map the trenches.

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:

$108 \div 9 = \square$

$55 \div 11 = \square$

$20 \div 2 = \square$

$22 \div 2 = \square$

$6 \div 1 = \square$

$24 \div 8 = \square$

$6 \div 3 = \square$

$84 \div 12 = \square$

$2 \div 2 = \square$

$72 \div 8 = \square$

$12 \div 3 = \square$

Step 2 - cross out the sentence with each answer:

1. The villain swipes a glowing coral tome, then escapes through a trench.
2. The villain grabs a heavy seashell dictionary, then slips into the dark abyss.
3. The villain snatches an ancient kelp map, then hides behind a school of tuna.
4. The villain grabs a heavy seashell dictionary, then escapes through a trench.
5. The villain snatches an ancient kelp map, then escapes through a trench.
6. The villain pockets a jellyfish journal, then zips away on a manta ray.
7. The villain steals a rare waterproof scroll, then hides behind a school of tuna.
8. The villain steals a rare waterproof scroll, then zips away on a manta ray.
9. The villain snatches an ancient kelp map, then zips away on a manta ray.
10. The villain steals a rare waterproof scroll, then swims past the barrier reef.
11. The villain swipes a glowing coral tome, then zips away on a manta ray.
12. The villain swipes a glowing coral tome, then swims past the barrier reef.

Answer Key

The Case of the Golden Kelp

Culprit: Cindy Van Dover

Deep Sea Sonar · Diver Helmet · Writes Right Handed · Blue Diving Suit · Dried Krill Chips

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE THIEF DOES NOT CARRY THE ALGAE SATCHEL"

$\frac{2}{3}$ of 33 = 22 (T) · $\frac{2}{6}$ of 108 = 36 (C) · $\frac{1}{4}$ of 128 = 32 (R) · $\frac{1}{3}$ of 33 = 11 (A) · $\frac{1}{3}$ of 30 = 10 (S) · $\frac{3}{6}$ of 62 = 31 (O) · $\frac{1}{2}$ of 50 = 25 (L) · $\frac{2}{10}$ of 85 = 17 (N) · $\frac{4}{5}$ of 25 = 20 (E) · $\frac{1}{4}$ of 148 = 37 (F) · $\frac{1}{5}$ of 45 = 9 (G) · $\frac{6}{10}$ of 30 = 18 (I) · $\frac{1}{2}$ of 70 = 35 (Y) · $\frac{3}{6}$ of 28 = 14 (D) · $\frac{2}{10}$ of 95 = 19 (H)

Clue 2 (Order of operations): "WE SAW RIGHT HANDED SMUDGES ON THE COVER"

$11 \times 6 - 19 = 47$ (W) · $4 + 7 \times 5 = 39$ (O) · $3 + 4 \times 2 = 11$ (M) · $11 \times 6 - 29 = 37$ (E) · $18 + 2 \times 4 = 26$ (V) · $10 \times 6 - 8 = 52$ (A) · $9 \times 9 - 12 = 69$ (R) · $2 + 2 \times 2 = 6$ (T) · $40 + 5 \times 3 = 55$ (H) · $4 + 2 \times 2 = 8$ (U) · $18 + 9 \times 2 = 36$ (G) · $10 \times 7 - 21 = 49$ (C) · $9 \times 10 - 17 = 73$ (D) · $6 \times 6 - 6 = 30$ (S) · $5 \times 7 - 1 = 34$ (I) · $2 \times 12 - 2 = 22$ (N)

Clue 3 (Multiplication facts (1-12)): "THE SCENE SMELLED OF DRIED KRILL CHIPS"

$11 \times 5 = 55$ (T) · $11 \times 8 = 88$ (F) · $9 \times 9 = 81$ (K) · $4 \times 1 = 4$ (R) · $11 \times 6 = 66$ (O) · $1 \times 3 = 3$ (D) · $4 \times 4 = 16$ (N) · $7 \times 6 = 42$ (E) · $4 \times 7 = 28$ (S) · $9 \times 12 = 108$ (L) · $11 \times 11 = 121$ (H) · $12 \times 12 = 144$ (C) · $9 \times 11 = 99$ (M) · $7 \times 7 = 49$ (I) · $2 \times 1 = 2$ (P)

Clue 4 (Rounding): "THE ENEMY DROPPED A BLUE DIVING SUIT THREAD"

Round 6,574 to the nearest thousand = 7000 (T) · Round 191 to the nearest hundred = 200 (B) · Round 4,521 to the nearest thousand = 5000 (E) · Round 128 to the nearest ten = 130 (P) · Round 3,652 to the nearest hundred = 3700 (O) · Round 49 to the nearest ten = 50 (D) · Round 226 to the nearest ten = 230 (V) · Round 368 to the nearest ten = 370 (N) · Round 4,288 to the nearest hundred = 4300 (S) · Round 114 to the nearest ten = 110 (I) · Round 746 to the nearest hundred = 700 (G) · Round 3,257 to the nearest thousand = 3000 (U) · Round 288 to the nearest ten = 290 (M) · Round 2,915 to the nearest hundred = 2900 (A) · Round 34 to the nearest ten = 30 (Y) · Round 540 to the nearest hundred = 500 (R) · Round 1,112 to the nearest hundred = 1100 (L) · Round 90 to the nearest ten = 90 (H)

Clue 5 (Division facts (1-12)): surviving statement is box 8 → Cindy Van Dover

$108 \div 9 = 12$ · $55 \div 11 = 5$ · $20 \div 2 = 10$ · $22 \div 2 = 11$ · $6 \div 1 = 6$ · $24 \div 8 = 3$ · $6 \div 3 = 2$ · $84 \div 12 = 7$ · $2 \div 2 = 1$ · $72 \div 8 = 9$ · $12 \div 3 = 4$