The Case of the Missing Prime Pearl

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

Someone snuck into the Royal Coral Vault and stole the ancient Prime Pearl! The Pearl Keeper needs your detective skills to clear the innocent mermaids and find the sneaky thief.

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 reef bandit is _____

Possible suspects

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

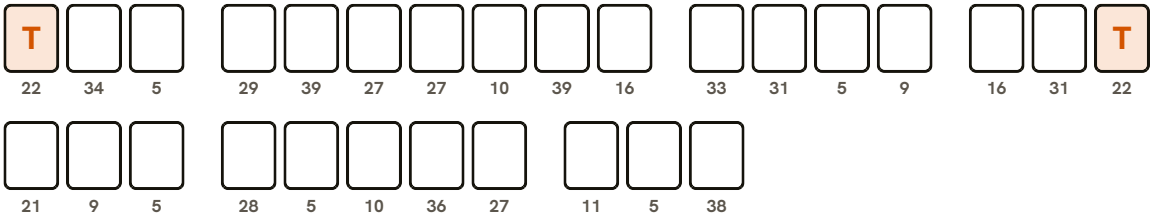
NAME	MAIN SKILL	SPECIAL GEM	DOMINANT HAND	HAIR COLOR	SILLY WEAKNESS
Sedna	bubble shield	prime crystal	left handed	royal purple	bright light
Breeze	bubble shield	prime crystal	left handed	royal purple	loud music
Callista	bubble shield	kelp badge	right handed	royal purple	bright light
Marina	shell armor	tidal rune	right handed	neon pink	loud music
Kai	echo siren	pearl gem	right handed	sea green	sweet fruit
Shelly	current glide	star stone	left handed	neon pink	bright light
Cascade	shell armor	star stone	right handed	neon pink	loud music
Ariel	current glide	star stone	right handed	royal purple	loud music
Triton	bubble shield	star stone	right handed	neon pink	bright light
Finn	wave blast	pearl gem	right handed	neon pink	loud music
Mako	bubble shield	tidal rune	right handed	neon pink	loud music
Nerida	wave blast	kelp badge	right handed	sea green	loud music
Pearl	shell armor	kelp badge	left handed	neon pink	loud music
Kelpie	shell armor	kelp badge	left handed	neon pink	sweet fruit
Caspian	current glide	tidal rune	left handed	neon pink	sweet fruit
Aquata	current glide	star stone	left handed	neon pink	loud music
Delphine	current glide	pearl gem	left handed	royal purple	bright light
Coralia	wave blast	star stone	right handed	sea green	loud music
Thalassa	wave blast	kelp badge	right handed	neon pink	loud music
Glaucus	bubble shield	prime crystal	right handed	sea green	loud music
Oceanus	bubble shield	pearl gem	right handed	royal purple	loud music

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CLUE 1 Fractions of a number

> Marina checked the fraction of pearl clam beds opened by the reef bandit.

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



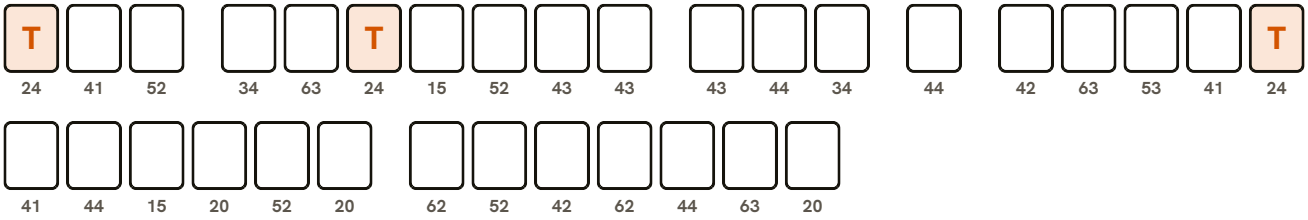
1/6 of 132 = ☐ → T	4/5 of 20 = ☐ → N	4/10 of 70 = ☐ → P
5/8 of 16 = ☐ → A	1/4 of 136 = ☐ → H	1/5 of 135 = ☐ → L
2/4 of 58 = ☐ → V	2/10 of 155 = ☐ → O	1/8 of 40 = ☐ → E
4/8 of 22 = ☐ → G	1/3 of 27 = ☐ → S	2/6 of 63 = ☐ → U
1/4 of 144 = ☐ → R	4/8 of 76 = ☐ → M	3/5 of 65 = ☐ → I
2/6 of 99 = ☐ → D		

Scratch space:

CLUE 2 Order of operations

> The underwater sonar decoded a multi step rule to track the sea trail.

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



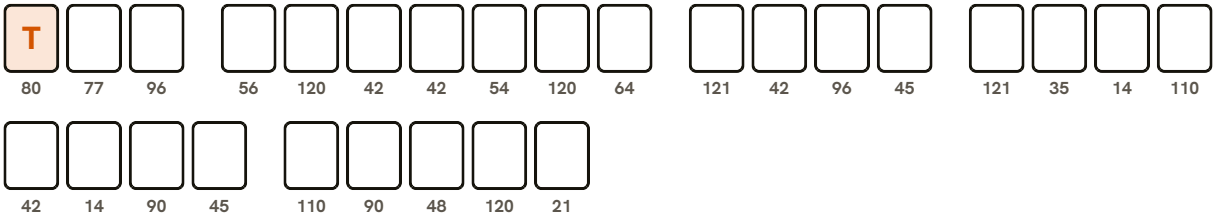
8 + 8 × 2 = ☐ → T	29 + 3 × 4 = ☐ → H	26 + 2 × 9 = ☐ → A
5 × 7 - 1 = ☐ → W	4 × 11 - 2 = ☐ → R	3 + 4 × 3 = ☐ → N
31 + 4 × 3 = ☐ → S	42 + 5 × 4 = ☐ → M	23 + 6 × 5 = ☐ → G
42 + 2 × 5 = ☐ → E	51 + 2 × 6 = ☐ → I	5 + 5 × 3 = ☐ → D

Scratch space:

CLUE 3 Multiplication facts (1-12)

> Detectives counted equal rows of glow sponges along the reef wall.

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



8 × 10 = ☐ → T	11 × 7 = ☐ → H	11 × 11 = ☐ → F
11 × 10 = ☐ → M	2 × 7 = ☐ → O	9 × 6 = ☐ → A
10 × 12 = ☐ → I	7 × 5 = ☐ → R	8 × 12 = ☐ → E
8 × 7 = ☐ → V	7 × 3 = ☐ → C	7 × 6 = ☐ → L
9 × 10 = ☐ → U	9 × 5 = ☐ → D	8 × 8 = ☐ → N

12 × 4 = ☐ → S			

Scratch space:

CLUE 4 Rounding

The trench radar only showed rounded depth measurements for the escape pod.

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

T																			
370	230	2300	300	70	2300	430	2300	230	20	4300	1700	1100	430	110	230	20	1100	130	

	T					
300	370	130	20	430	4300	300

Round 369 to the nearest ten ☐ → T

Round 106 to the nearest ten ☐ → K

Round 273 to the nearest hundred ☐ → S

Round 1,140 to the nearest hundred ☐ → I

Round 131 to the nearest ten ☐ → R

Round 70 to the nearest ten ☐ → C

Round 1,663 to the nearest hundred ☐ → P

Round 21 to the nearest ten ☐ → A

Round 429 to the nearest ten ☐ → N

Round 4,289 to the nearest hundred ☐ → D

Round 2,272 to the nearest hundred ☐ → E

Round 231 to the nearest ten ☐ → H

Scratch space:

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

> The mermaid guards divided the recovered shell tokens equally among 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:

77 ÷ 11 = ☐ | 25 ÷ 5 = ☐ | 40 ÷ 5 = ☐ | 132 ÷ 11 = ☐ | 70 ÷ 7 = ☐

9 ÷ 3 = ☐ | 24 ÷ 6 = ☐ | 54 ÷ 9 = ☐ | 8 ÷ 4 = ☐ | 77 ÷ 7 = ☐

10 ÷ 10 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain surfed a current, then tangled a kelp badge.
2. The villain blew giant bubbles, then tangled a kelp badge.
3. The villain blew giant bubbles, then shattered a star stone.
4. The villain created a wave, then lost a pearl gem.
5. The villain created a wave, then tangled a kelp badge.
6. The villain surfed a current, then lost a pearl gem.
7. The villain swam away fast, then left a tidal rune.
8. The villain hid in coral, then shattered a star stone.
9. The villain hid in coral, then left a tidal rune.
10. The villain created a wave, then left a tidal rune.
11. The villain surfed a current, then shattered a star stone.
12. The villain blew giant bubbles, then dropped a prime crystal.

TEACHER / PARENT

Answer Key

The Case of the Missing Prime Pearl

Culprit: Marina

shell armor · tidal rune · right handed · neon pink · loud music

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE VILLAIN DOES NOT USE PEARL GEM"

1/6 of 132 = 22 (T) · 4/5 of 20 = 16 (N) · 4/10 of 70 = 28 (P) · 5/8 of 16 = 10 (A) · 1/4 of 136 = 34 (H) · 1/5 of 135 = 27 (L) · 2/4 of 58 = 29 (V) · 2/10 of 155 = 31 (O) · 1/8 of 40 = 5 (E) · 4/8 of 22 = 11 (G) · 1/3 of 27 = 9 (S) · 2/6 of 63 = 21 (U) · 1/4 of 144 = 36 (R) · 4/8 of 76 = 38 (M) · 3/5 of 65 = 39 (I) · 2/6 of 99 = 33 (D)

Clue 2 (Order of operations): "THE WITNESS SAW A RIGHT HANDED MERMAID"

8 + 8 × 2 = 24 (T) · 29 + 3 × 4 = 41 (H) · 26 + 2 × 9 = 44 (A) · 5 × 7 - 1 = 34 (W) · 4 × 11 - 2 = 42 (R) · 3 + 4 × 3 = 15 (N) · 31 + 4 × 3 = 43 (S) · 42 + 5 × 4 = 62 (M) · 23 + 6 × 5 = 53 (G) · 42 + 2 × 5 = 52 (E) · 51 + 2 × 6 = 63 (I) · 5 + 5 × 3 = 20 (D)

Clue 3 (Multiplication facts (1-12)): "THE VILLAIN FLED FROM LOUD MUSIC"

8 × 10 = 80 (T) · 11 × 7 = 77 (H) · 11 × 11 = 121 (F) · 11 × 10 = 110 (M) · 2 × 7 = 14 (O) · 9 × 6 = 54 (A) · 10 × 12 = 120 (I) · 7 × 5 = 35 (R) · 8 × 12 = 96 (E) · 8 × 7 = 56 (V) · 7 × 3 = 21 (C) · 7 × 6 = 42 (L) · 12 × 4 = 48 (S) · 9 × 10 = 90 (U) · 9 × 5 = 45 (D) · 8 × 8 = 64 (N)

Clue 4 (Rounding): "THE SCENE HAD PINK HAIR STRANDS"

Round 369 to the nearest ten = 370 (T) · Round 106 to the nearest ten = 110 (K) · Round 273 to the nearest hundred = 300 (S) · Round 1,140 to the nearest hundred = 1100 (I) · Round 131 to the nearest ten = 130 (R) · Round 70 to the nearest ten = 70 (C) · Round 1,663 to the nearest hundred = 1700 (P) · Round 21 to the nearest ten = 20 (A) · Round 429 to the nearest ten = 430 (N) · Round 4,289 to the nearest hundred = 4300 (D) · Round 2,272 to the nearest hundred = 2300 (E) · Round 231 to the nearest ten = 230 (H)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Marina

77 ÷ 11 = 7 · 25 ÷ 5 = 5 · 40 ÷ 5 = 8 · 132 ÷ 11 = 12 · 70 ÷ 7 = 10 · 9 ÷ 3 = 3 · 24 ÷ 6 = 4 · 54 ÷ 9 = 6 · 8 ÷ 4 = 2 · 77 ÷ 7 = 11 · 10 ÷ 10 = 1