The Case of the Golden Compass

Grade 6 math · Percentages, Exponents, Order of operations, Multiplication, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

The golden compass of Salty Cut Cove has vanished from the lighthouse vault! A sneaky pirate snuck aboard at midnight, locked the guard in the hold, and made off with the treasure. Figure out who did it before the tide rolls out.

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 scallywag is _____

Possible suspects

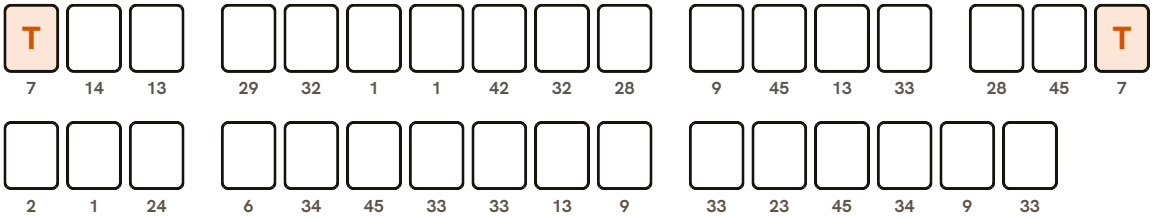
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	SIGNATURE WEAPON	SHIP FLAG	STANCE	BEARD STYLE	FEAR
Stede Bonnet	Throwing Daggers	Jolly Roger	Right Handed	Bushy Beard	Loud Foghorns
Thomas Tew	Cutlass	Kraken Emblem	Right Handed	Clean Shaven	Bright Searchlights
Blackbeard	Boarding Axe	Jolly Roger	Right Handed	Braided Beard	Squeaking Mice
Mary Read	Flintlock Pistol	Jolly Roger	Left Handed	Braided Beard	Loud Foghorns
Howell Davis	Boarding Axe	Jolly Roger	Left Handed	Clean Shaven	Squeaking Mice
Charles Vane	Throwing Daggers	Golden Anchor	Left Handed	Braided Beard	Squeaking Mice
Barnaby Barnacle	Cutlass	Golden Anchor	Left Handed	Bushy Beard	Bright Searchlights
John Rackham	Hook Hand	Jolly Roger	Right Handed	Clean Shaven	Bright Searchlights
Sea Dog Sam	Flintlock Pistol	Golden Anchor	Right Handed	Clean Shaven	Loud Foghorns
Bartholomew Roberts	Flintlock Pistol	Crossed Swords	Right Handed	Clean Shaven	Bright Searchlights
Rachel Wall	Throwing Daggers	Sea Serpent	Left Handed	Clean Shaven	Loud Foghorns
Woodes Rogers	Throwing Daggers	Crossed Swords	Right Handed	Braided Beard	Loud Foghorns
Zheng Yi Sao	Flintlock Pistol	Sea Serpent	Left Handed	Clean Shaven	Bright Searchlights
Francois l Olonnais	Flintlock Pistol	Sea Serpent	Right Handed	Clean Shaven	Loud Foghorns
Samuel Bellamy	Hook Hand	Sea Serpent	Right Handed	Clean Shaven	Loud Foghorns
Captain Kidd	Throwing Daggers	Sea Serpent	Right Handed	Clean Shaven	Bright Searchlights
Anne Bonny	Cutlass	Golden Anchor	Right Handed	Braided Beard	Bright Searchlights
Charlotte de Berry	Boarding Axe	Sea Serpent	Right Handed	Clean Shaven	Bright Searchlights
Edward Low	Throwing Daggers	Golden Anchor	Right Handed	Bushy Beard	Squeaking Mice
Henry Morgan	Cutlass	Jolly Roger	Right Handed	Bushy Beard	Bright Searchlights
Jean Lafitte	Flintlock Pistol	Sea Serpent	Left Handed	Braided Beard	Bright Searchlights

CLUE 1 Percentages

The quartermaster calculated the percentage of stolen gold coins stored in each chest to find a lead.

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



20% of 35 = ☐ → T

10% of 230 = ☐ → W

5% of 660 = ☐ → S

25% of 128 = ☐ → I

10% of 290 = ☐ → V

50% of 28 = ☐ → H

40% of 85 = ☐ → R

5% of 840 = ☐ → A

50% of 4 = ☐ → F

25% of 180 = ☐ → O

20% of 5 = ☐ → L

10% of 60 = ☐ → C

40% of 60 = ☐ → Y

50% of 18 = ☐ → D

20% of 140 = ☐ → N

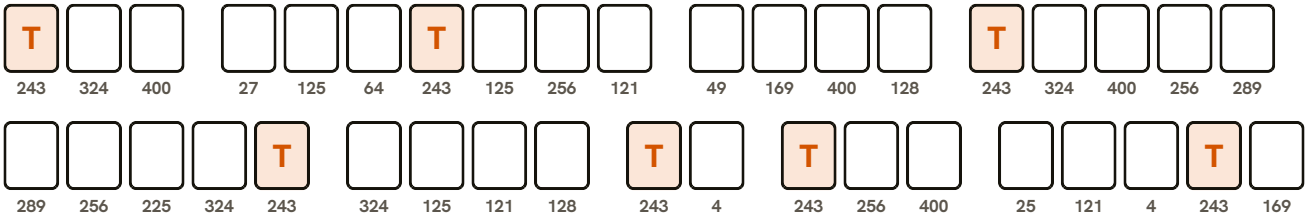
5% of 260 = ☐ → E

Scratch space:

CLUE 2 Exponents

> The navigator used powers of two to chart the expanding area of the search grid across the bay.

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



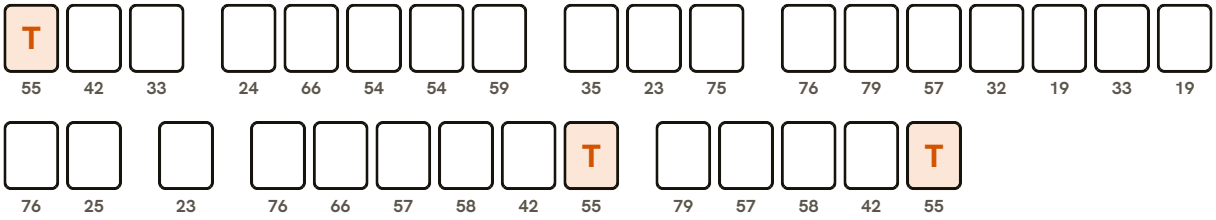
3^5 = ☐ → T	7^2 = ☐ → U	20^2 = ☐ → E	18^2 = ☐ → H
2^2 = ☐ → O	2^8 = ☐ → I	2^7 = ☐ → D	15^2 = ☐ → G
17^2 = ☐ → R	2^6 = ☐ → P	5^2 = ☐ → K	13^2 = ☐ → S
11^2 = ☐ → N	3^3 = ☐ → C	5^3 = ☐ → A	

Scratch space:

CLUE 3 Order of operations

The deckhand solved the step by step ship inventory formula to unlock the captains sealed ledger.

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



15 + 5 × 8 = ☐ → T

2 + 6 × 5 = ☐ → N

21 + 3 × 4 = ☐ → E

9 + 4 × 4 = ☐ → Y

6 × 11 - 7 = ☐ → K

70 + 3 × 3 = ☐ → L

10 + 2 × 7 = ☐ → C

19 + 5 × 7 = ☐ → O

8 × 12 - 20 = ☐ → B

5 + 7 × 2 = ☐ → D

38 + 4 × 7 = ☐ → R

20 + 3 × 5 = ☐ → W

11 × 6 - 9 = ☐ → I

48 + 2 × 5 = ☐ → G

40 + 7 × 5 = ☐ → S

15 + 9 × 3 = ☐ → H

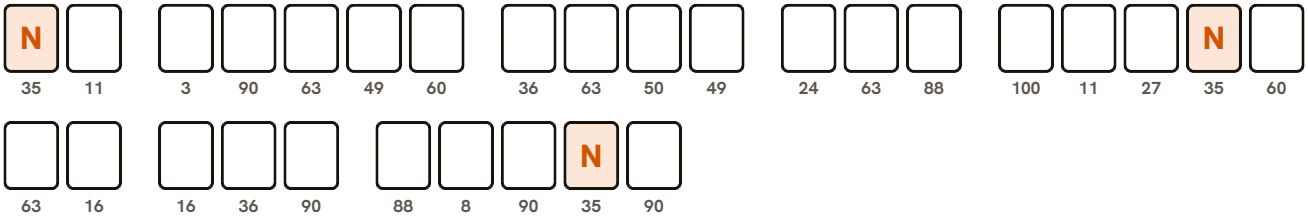
7 × 7 - 26 = ☐ → A

Scratch space:

CLUE 4 Multiplication facts (1-12)

> The lookout counted total cannonballs by multiplying the rows packed in the hold.

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



7 × 5 = ☐ → N	5 × 10 = ☐ → I	4 × 9 = ☐ → H	7 × 7 = ☐ → R
8 × 1 = ☐ → C	6 × 4 = ☐ → W	8 × 11 = ☐ → S	3 × 1 = ☐ → B
10 × 9 = ☐ → E	12 × 5 = ☐ → D	10 × 10 = ☐ → F	
9 × 3 = ☐ → U	8 × 2 = ☐ → T	1 × 11 = ☐ → O	7 × 9 = ☐ → A

Scratch space:

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

> The purser divided the remaining food rations equally among the boat crews to calculate supplies.

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:

12 ÷ 2 = ☐	21 ÷ 3 = ☐	2 ÷ 1 = ☐	80 ÷ 10 = ☐	45 ÷ 9 = ☐
90 ÷ 9 = ☐	121 ÷ 11 = ☐	20 ÷ 5 = ☐	36 ÷ 12 = ☐	99 ÷ 11 = ☐
9 ÷ 9 = ☐				

Step 2 - cross out the sentence with each answer:

1. The villain fired a warning shot with a flintlock, then hoisted a jolly roger flag.
2. The villain slashed the sail with a cutlass, then raised a kraken emblem banner.
3. The villain pried open the chest with a hook, then unfurled a golden anchor flag.
4. The villain stuck a note using throwing daggers, then hoisted a jolly roger flag.
5. The villain stuck a note using throwing daggers, then raised a kraken emblem banner.
6. The villain pried open the chest with a hook, then hoisted a jolly roger flag.
7. The villain chopped the latch with a boarding axe, then flew a sea serpent pennant.
8. The villain pried open the chest with a hook, then raised a kraken emblem banner.
9. The villain chopped the latch with a boarding axe, then unfurled a golden anchor flag.
10. The villain fired a warning shot with a flintlock, then displayed a crossed swords crest.
11. The villain pried open the chest with a hook, then displayed a crossed swords crest.
12. The villain stuck a note using throwing daggers, then flew a sea serpent pennant.

TEACHER / PARENT

Answer Key

The Case of the Golden Compass

Culprit: Captain Kidd

Throwing Daggers · Sea Serpent · Right Handed · Clean Shaven · Bright Searchlights

Trail: Start 21 → Clue 1 19 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Percentages): "THE VILLAIN DOES NOT FLY CROSSED SWORDS"

20% of 35 = 7 (T) · 10% of 230 = 23 (W) · 5% of 660 = 33 (S) · 25% of 128 = 32 (I) · 10% of 290 = 29 (V) · 50% of 28 = 14 (H) · 40% of 85 = 34 (R) · 5% of 840 = 42 (A) · 50% of 4 = 2 (F) · 25% of 180 = 45 (O) · 20% of 5 = 1 (L) · 10% of 60 = 6 (C) · 40% of 60 = 24 (Y) · 50% of 18 = 9 (D) · 20% of 140 = 28 (N) · 5% of 260 = 13 (E)

Clue 2 (Exponents): "THE CAPTAIN USED THEIR RIGHT HAND TO TIE KNOTS"

3^5 = 243 (T) · 7^2 = 49 (U) · 20^2 = 400 (E) · 18^2 = 324 (H) · 2^2 = 4 (O) · 2^8 = 256 (I) · 2^7 = 128 (D) · 15^2 = 225 (G) · 17^2 = 289 (R) · 2^6 = 64 (P) · 5^2 = 25 (K) · 13^2 = 169 (S) · 11^2 = 121 (N) · 3^3 = 27 (C) · 5^3 = 125 (A)

Clue 3 (Order of operations): "THE CROOK WAS BLINDED BY A BRIGHT LIGHT"

15 + 5 × 8 = 55 (T) · 2 + 6 × 5 = 32 (N) · 21 + 3 × 4 = 33 (E) · 9 + 4 × 4 = 25 (Y) · 6 × 11 - 7 = 59 (K) · 70 + 3 × 3 = 79 (L) · 10 + 2 × 7 = 24 (C) · 19 + 5 × 7 = 54 (O) · 8 × 12 - 20 = 76 (B) · 5 + 7 × 2 = 19 (D) · 38 + 4 × 7 = 66 (R) · 20 + 3 × 5 = 35 (W) · 11 × 6 - 9 = 57 (I) · 48 + 2 × 5 = 58 (G) · 40 + 7 × 5 = 75 (S) · 15 + 9 × 3 = 42 (H) · 7 × 7 - 26 = 23 (A)

Clue 4 (Multiplication facts (1-12)): "NO BEARD HAIR WAS FOUND AT THE SCENE"

7 × 5 = 35 (N) · 5 × 10 = 50 (I) · 4 × 9 = 36 (H) · 7 × 7 = 49 (R) · 8 × 1 = 8 (C) · 6 × 4 = 24 (W) · 8 × 11 = 88 (S) · 3 × 1 = 3 (B) · 10 × 9 = 90 (E) · 12 × 5 = 60 (D) · 10 × 10 = 100 (F) · 9 × 3 = 27 (U) · 8 × 2 = 16 (T) · 1 × 11 = 11 (O) · 7 × 9 = 63 (A)

Clue 5 (Division facts (1-12)): surviving statement is box 12 → Captain Kidd

12 ÷ 2 = 6 · 21 ÷ 3 = 7 · 2 ÷ 1 = 2 · 80 ÷ 10 = 8 · 45 ÷ 9 = 5 · 90 ÷ 9 = 10 · 121 ÷ 11 = 11 · 20 ÷ 5 = 4 · 36 ÷ 12 = 3 · 99 ÷ 11 = 9 · 9 ÷ 9 = 1