



Mystery of the Cloud Peak Pirate

Grade 10 math · Pythagorean theorem, Square roots, Exponents, Order of operations · Reading level grades 3-4

Detective: _____ **Date:** _____

A mysterious Sky Raider boarded the Cloud Sovereign and stole the golden compass. Captain Valerie needs your help to decode the clues, spot the culprit, and return the compass to the fleet.

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 Sky Raider is _____

Possible suspects

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

NAME	AIRSHIP WEAPON	SKY GADGET	TACKING STYLE	BANDANA COLOR	WEAKNESS
Rigger Otis	Grapple Hook	Glider Wings	Right Handed	Crimson Red	Bright Lights
Sailor Ruby	Harpoon Launcher	Brass Compass	Left Handed	Midnight Black	Salty Water
Rigger Maya	Steam Blast	Brass Compass	Left Handed	Crimson Red	Bright Lights
Gunner Tess	Steam Blast	Spyglass Lens	Left Handed	Crimson Red	Salty Water
Lookout Wren	Steam Blast	Glider Wings	Left Handed	Midnight Black	Bright Lights
First Mate Piper	Steam Blast	Glider Wings	Right Handed	Midnight Black	Bright Lights
Scout Finn	Lightning Cannon	Spyglass Lens	Right Handed	Crimson Red	Salty Water
Navigator Iris	Wind Cannon	Brass Compass	Right Handed	Sun Gold	Bright Lights
Officer Felix	Harpoon Launcher	Smoke Bombs	Left Handed	Sun Gold	Salty Water
Captain Barnaby	Lightning Cannon	Brass Compass	Right Handed	Midnight Black	Loud Whistles
Lookout Toby	Grapple Hook	Brass Compass	Right Handed	Midnight Black	Loud Whistles
Pilot Nora	Lightning Cannon	Anchor Drop	Right Handed	Sun Gold	Loud Whistles
Sky Navigator Dax	Wind Cannon	Brass Compass	Left Handed	Crimson Red	Bright Lights
First Mate Sam	Harpoon Launcher	Anchor Drop	Left Handed	Crimson Red	Loud Whistles
Scout Cleo	Steam Blast	Anchor Drop	Right Handed	Midnight Black	Loud Whistles
Captain Valerie	Harpoon Launcher	Anchor Drop	Right Handed	Sun Gold	Salty Water
Gunner Jax	Grapple Hook	Spyglass Lens	Left Handed	Crimson Red	Bright Lights
Captain Bruno	Wind Cannon	Spyglass Lens	Right Handed	Crimson Red	Bright Lights
Sailor Holly	Harpoon Launcher	Glider Wings	Left Handed	Sun Gold	Salty Water
Helmsman Kai	Lightning Cannon	Glider Wings	Left Handed	Crimson Red	Bright Lights
Pilot Vance	Grapple Hook	Glider Wings	Left Handed	Crimson Red	Bright Lights

CLUE 1 Pythagorean theorem

The airship navigator measures the diagonal distance across the map grid to narrow down the raider ship.

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

legs 12 and 35, hypotenuse = → **T**

legs 24 and 70, hypotenuse = $\rightarrow$ **U**

legs 30 and 40, hypotenuse = $\rightarrow$ **D**

legs 60 and 63, hypotenuse = $\rightarrow$ **K**

legs 36 and 105, hypotenuse = → **S**

legs 9 and 40, hypotenuse = → **A**

legs 20 and 48, hypotenuse = $\rightarrow$ **P**

legs 27 and 120, hypotenuse = $\rightarrow$

legs 3 and 4, hypotenuse = $\rightarrow$ **0**

legs 21 and 72, hypotenuse = $\rightarrow$ **Y**

legs 40 and 42, hypotenuse = → **G**

legs 32 and 60, hypotenuse = $\rightarrow$ **R**

legs 10 and 24, hypotenuse = → **E**

legs 25 and 60, hypotenuse = $\rightarrow$ **N**

legs 40 and 75, hypotenuse = → **H**

legs 15 and 20, hypotenuse = → **L**

Scratch space:

CLUE 2 Square roots

The deck engineer calculates the side length of a square storage crate to find where clues were hidden.

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

W											W					
8	9	3	25	20	4	4	20	4	4	10	8	10	11	20	24	3

						W										
21	10	25	15	20	15	8	21	20	20	11	3	5	7	25		

$\sqrt{64} = \square \rightarrow \boxed{W}$

$\sqrt{625} = \square \rightarrow \boxed{N}$

$\sqrt{400} = \square \rightarrow \boxed{E}$

$\sqrt{121} = \square \rightarrow \boxed{L}$

$\sqrt{100} = \square \rightarrow \boxed{A}$

$\sqrt{225} = \square \rightarrow \boxed{D}$

$\sqrt{441} = \square \rightarrow \boxed{H}$

$\sqrt{16} = \square \rightarrow \boxed{S}$

$\sqrt{9} = \square \rightarrow \boxed{T}$

$\sqrt{25} = \square \rightarrow \boxed{U}$

$\sqrt{49} = \square \rightarrow \boxed{R}$

$\sqrt{576} = \square \rightarrow \boxed{F}$

$\sqrt{81} = \square \rightarrow \boxed{I}$

Scratch space:

CLUE 3

Exponents

The lookout calculates the booming power scale of the engine blasts floating across the clouds.

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

T																			
729	361	4	256	125	100	484	4	256	343	225	64	4	256	4	484	4	400	4	121
243	256	225	9	8	256	100	144	361	729	289	100	144	361	729	121				

$9^3 = \square \rightarrow$ T	$5^3 = \square \rightarrow$ A	$10^2 = \square \rightarrow$ I	$11^2 = \square \rightarrow$ S
$8^2 = \square \rightarrow$ V	$19^2 = \square \rightarrow$ H	$3^5 = \square \rightarrow$ F	$2^3 = \square \rightarrow$ B
$16^2 = \square \rightarrow$ R	$17^2 = \square \rightarrow$ L	$20^2 = \square \rightarrow$ Y	$3^2 = \square \rightarrow$ M
$2^2 = \square \rightarrow$ E	$12^2 = \square \rightarrow$ G	$7^3 = \square \rightarrow$ C	$15^2 = \square \rightarrow$ O
$22^2 = \square \rightarrow$ D			

Scratch space:

CLUE 4

Order of operations

The quartermaster solves a multi step fuel mix equation to read the locked ship log.

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

T																	
30	16	82	42	82	109	24	16	96	42	96	109	98	103	116	50	112	105
											T						
98	82	42	76	96	105	42	96	105	96	50	30	98	96	105	42		

$12 + 9 \times 2 = \square \rightarrow \text{[T]}$

$7 \times 7 - 25 = \square \rightarrow \text{[K]}$

$68 + 8 \times 6 = \square \rightarrow \text{[M]}$

$6 \times 11 - 24 = \square \rightarrow \text{[D]}$

$58 + 6 \times 9 = \square \rightarrow \text{[O]}$

$10 \times 12 - 24 = \square \rightarrow \text{[A]}$

$10 \times 9 - 14 = \square \rightarrow \text{[B]}$

$92 + 3 \times 2 = \square \rightarrow \text{[R]}$

$72 + 5 \times 2 = \square \rightarrow \text{[E]}$

$7 \times 8 - 6 = \square \rightarrow \text{[S]}$

$9 \times 5 - 29 = \square \rightarrow \text{[H]}$

$85 + 3 \times 6 = \square \rightarrow \text{[I]}$

$63 + 7 \times 6 = \square \rightarrow \text{[N]}$

$69 + 5 \times 8 = \square \rightarrow \text{[C]}$

Scratch space:

CLUE 5**Square roots - the last clue**

The navigator finds the square root of the landing dock area to track the escape route.

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:

$\text{sqrt}(25) = \boxed{}$

$\text{sqrt}(1) = \boxed{}$

$\text{sqrt}(64) = \boxed{}$

$\text{sqrt}(49) = \boxed{}$

$\text{sqrt}(36) = \boxed{}$

$\text{sqrt}(4) = \boxed{}$

$\text{sqrt}(121) = \boxed{}$

$\text{sqrt}(144) = \boxed{}$

$\text{sqrt}(100) = \boxed{}$

$\text{sqrt}(16) = \boxed{}$

$\text{sqrt}(9) = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain shoots a steam blast, then checks a brass compass.
2. The villain shoots a steam blast, then uses a spyglass lens.
3. The villain fires a wind cannon, then triggers an anchor drop.
4. The villain fires a wind cannon, then uses a spyglass lens.
5. The villain fires a grapple hook, then deploys glider wings.
6. The villain fires a grapple hook, then drops smoke bombs.
7. The villain shoots a steam blast, then deploys glider wings.
8. The villain blasts a lightning cannon, then deploys glider wings.
9. The villain fires a wind cannon, then checks a brass compass.
10. The villain blasts a lightning cannon, then drops smoke bombs.
11. The villain blasts a lightning cannon, then uses a spyglass lens.
12. The villain shoots a steam blast, then triggers an anchor drop.

Answer Key

Mystery of the Cloud Peak Pirate

Culprit: Sky Navigator Dax

Wind Cannon · Brass Compass · Left Handed · Crimson Red · Bright Lights

Trail: Start 21 → Clue 1 17 → Clue 2 9 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE SKY RAIDER DOES NOT USE A SPYGLASS LENS"

legs 12 and 35, hypotenuse = 37 (T) · legs 24 and 70, hypotenuse = 74 (U) · legs 30 and 40, hypotenuse = 50 (D) · legs 60 and 63, hypotenuse = 87 (K) · legs 36 and 105, hypotenuse = 111 (S) · legs 9 and 40, hypotenuse = 41 (A) · legs 20 and 48, hypotenuse = 52 (P) · legs 27 and 120, hypotenuse = 123 (I) · legs 3 and 4, hypotenuse = 5 (O) · legs 21 and 72, hypotenuse = 75 (Y) · legs 40 and 42, hypotenuse = 58 (G) · legs 32 and 60, hypotenuse = 68 (R) · legs 10 and 24, hypotenuse = 26 (E) · legs 25 and 60, hypotenuse = 65 (N) · legs 40 and 75, hypotenuse = 85 (H) · legs 15 and 20, hypotenuse = 25 (L)

Clue 2 (Square roots): "WITNESSES SAW A LEFT HANDED WHEEL TURN"

$\sqrt{64} = 8$ (W) · $\sqrt{625} = 25$ (N) · $\sqrt{400} = 20$ (E) · $\sqrt{121} = 11$ (L) · $\sqrt{100} = 10$ (A) · $\sqrt{225} = 15$ (D) · $\sqrt{441} = 21$ (H) · $\sqrt{16} = 4$ (S) · $\sqrt{9} = 3$ (T) · $\sqrt{25} = 5$ (U) · $\sqrt{49} = 7$ (R) · $\sqrt{576} = 24$ (F) · $\sqrt{81} = 9$ (I)

Clue 3 (Exponents): "THE RAIDER COVERED EYES FROM BRIGHT LIGHTS"

$9^3 = 729$ (T) · $5^3 = 125$ (A) · $10^2 = 100$ (I) · $11^2 = 121$ (S) · $8^2 = 64$ (V) · $19^2 = 361$ (H) · $3^5 = 243$ (F) · $2^3 = 8$ (B) · $16^2 = 256$ (R) · $17^2 = 289$ (L) · $20^2 = 400$ (Y) · $3^2 = 9$ (M) · $2^2 = 4$ (E) · $12^2 = 144$ (G) · $7^3 = 343$ (C) · $15^2 = 225$ (O) · $22^2 = 484$ (D)

Clue 4 (Order of operations): "THE DECK HAD A CRIMSON RED BANDANA STRAND"

$12 + 9 \times 2 = 30$ (T) · $7 \times 7 - 25 = 24$ (K) · $68 + 8 \times 6 = 116$ (M) · $6 \times 11 - 24 = 42$ (D) · $58 + 6 \times 9 = 112$ (O) · $10 \times 12 - 24 = 96$ (A) · $10 \times 9 - 14 = 76$ (B) · $92 + 3 \times 2 = 98$ (R) · $72 + 5 \times 2 = 82$ (E) · $7 \times 8 - 6 = 50$ (S) · $9 \times 5 - 29 = 16$ (H) · $85 + 3 \times 6 = 103$ (I) · $63 + 7 \times 6 = 105$ (N) · $69 + 5 \times 8 = 109$ (C)

Clue 5 (Square roots): surviving statement is box 9 → Sky Navigator Dax

$\sqrt{25} = 5$ · $\sqrt{1} = 1$ · $\sqrt{64} = 8$ · $\sqrt{49} = 7$ · $\sqrt{36} = 6$ · $\sqrt{4} = 2$ · $\sqrt{121} = 11$ · $\sqrt{144} = 12$ · $\sqrt{100} = 10$ · $\sqrt{16} = 4$ · $\sqrt{9} = 3$