



The Nebula Raptor Raid

Grade 10 math · Pythagorean theorem, Square roots, Exponents, Order of operations · Reading level grades 7-9

Detective: _____ Date: _____

An unknown cosmic raider boarded the Starship Fossil Finder, breached the vault, and snatched the glowing spinosaurus fossil core. Match the tactical clues to identify the suspect.

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 Cosmic 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 WEAPON	DINO COMPANION	DOMINANT HAND	HELMET TYPE	DEFENSE COUNTER
Cadet Cora	Astro Cannon	Pterodactyl Flyer	Right Handed	Solar Visor	Stun Flare
Commander Trex	Plasma Saber	Raptor Drone	Left Handed	Cyber Bandana	Sonic Boom
Captain Nova	Laser Cutlass	T-Rex Mech	Right Handed	Cyber Bandana	EMP Pulse
Raptor Rick	Astro Cannon	Raptor Drone	Left Handed	Cyber Bandana	Sonic Boom
Pirate Peg	Plasma Saber	Stego Shield	Right Handed	Neon Crest	EMP Pulse
Rex Rogue	Laser Cutlass	Raptor Drone	Right Handed	Cyber Bandana	Sonic Boom
Star Skylar	Plasma Saber	Stego Shield	Left Handed	Neon Crest	Sonic Boom
Cadet Cleo	Astro Cannon	Tricera Tank	Right Handed	Neon Crest	Sonic Boom
Corsair Kai	Astro Cannon	Pterodactyl Flyer	Left Handed	Cyber Bandana	EMP Pulse
Pirate Penny	Plasma Saber	Pterodactyl Flyer	Left Handed	Cyber Bandana	Sonic Boom
Astro Ann	Gravity Net	Raptor Drone	Left Handed	Cyber Bandana	Sonic Boom
Space Bart	Gravity Net	T-Rex Mech	Left Handed	Neon Crest	Sonic Boom
Astro Rex	Cyber Hook	T-Rex Mech	Left Handed	Cyber Bandana	Sonic Boom
Drake Vance	Cyber Hook	Stego Shield	Right Handed	Neon Crest	Stun Flare
Comet Cal	Gravity Net	Pterodactyl Flyer	Right Handed	Neon Crest	EMP Pulse
Pirate Pete	Gravity Net	Tricera Tank	Right Handed	Cyber Bandana	Sonic Boom
Officer Jax	Cyber Hook	T-Rex Mech	Left Handed	Cyber Bandana	Stun Flare
Captain Blackbeard	Astro Cannon	T-Rex Mech	Left Handed	Neon Crest	Sonic Boom
Captain Flint	Laser Cutlass	Tricera Tank	Right Handed	Neon Crest	Stun Flare
Star Lord Vance	Laser Cutlass	Tricera Tank	Right Handed	Cyber Bandana	EMP Pulse
Corsair Cruz	Gravity Net	Pterodactyl Flyer	Left Handed	Neon Crest	EMP Pulse

CLUE 1 Pythagorean theorem

Scanning the shortcut distance across the triangular starship hall revealed a hidden clue.

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

Diagram illustrating the sequence of numbers and 'T' markers across two rows:

Row 1: 13 (T), 123, 116, 41, 65, 51, 17, 116, 41, 37, 17, 111, 75, 111, 13 (T), 123, 65, 125, 116

Row 2: 65, 82, 13 (T), 116, 41, 111, 17, 65, 15, 13 (T), 100, 85, 5, 85, 100, 116, 41

legs 5 and 12, hypotenuse = $\rightarrow$ **T**

legs 80 and 84, hypotenuse = $\rightarrow$ **E**

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

legs 12 and 35, hypotenuse = $\rightarrow$ **S**

legs 24 and 45, hypotenuse = $\rightarrow$

legs 9 and 40, hypotenuse = $\rightarrow$ **R**

legs 9 and 12, hypotenuse = $\rightarrow$ **C**

legs 25 and 60, hypotenuse = → **A**

legs 36 and 105, hypotenuse = $\rightarrow$

legs 40 and 75, hypotenuse = → **L**

legs 27 and 120, hypotenuse = → **H**

legs 8 and 15, hypotenuse = $\rightarrow$ **D**

legs 35 and 120, hypotenuse = $\rightarrow$ **V**

legs 3 and 4, hypotenuse = → **F**

legs 28 and 96, hypotenuse = → **Y**

legs 18 and 80, hypotenuse = → **P**

Scratch space:

CLUE 2

Calculating the side length of the square vault room exposed the intruder footprint code.

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

A 2x15 grid of boxes. The top row contains 15 boxes with the following values from left to right: 14 (orange), 3, 24, 16, 14 (orange), 14 (orange), 16, 20, 4, 24, 15, 3, 24, 17, 12, 14 (orange), 3, 24. The bottom row contains 15 boxes with the following values from left to right: 17, 16, 13, 24, 15, 6, 11, 17, 24, 21, 14 (orange), 3, 16, 11, 12.

sqrt(196) = → **T**

sqrt(9) = → **H**

sqrt(121) = → **N**

sqrt(169) = → **S**

sqrt(441) = → **F**

sqrt(144) = → **D**

sqrt(225) = → **R**

sqrt(36) = →

sqrt(289) = → **L**

sqrt(576) = → **E**

sqrt(16) = → **K**

sqrt(256) = → **A**

sqrt(400) = → **C**

Scratch space:

CLUE 3

Exponents

Measuring the exponential power surges in the hyperdrive unlocked a vital memory log.

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

The diagram illustrates the prime factorization of 27,000,000. The top row contains 18 boxes, and the bottom row contains 10 boxes. The boxes are arranged in two rows, with the top row having 18 boxes and the bottom row having 10 boxes. The boxes are labeled with numbers below them, representing their values. The top row has 18 boxes, and the bottom row has 10 boxes. The boxes are labeled with numbers below them, representing their values. The top row has 18 boxes, and the bottom row has 10 boxes. The boxes are labeled with numbers below them, representing their values.

Row	Box Index	Value	Label
Top	1	27	T
Top	2	8	
Top	3	256	
Top	4	36	
Top	5	9	
Top	6	100	
Top	7	225	
Top	8	27	T
Top	9	125	
Top	10	256	
Top	11	196	
Top	12	256	
Top	13	243	
Top	14	125	
Top	15	256	
Top	16	125	
Top	17	32	
Top	18	9	
Top	19	27	T
Top	20	8	
Bottom	1	289	
Bottom	2	25	
Bottom	3	225	
Bottom	4	243	
Bottom	5	9	
Bottom	6	64	
Bottom	7	484	
Bottom	8	225	
Bottom	9	225	
Bottom	10	81	

$$3^3 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$10^2 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$5^2 = \boxed{} \rightarrow \boxed{\mathbf{S}}$$

$$15^2 = \boxed{} \rightarrow \boxed{0}$$

$$6^2 = \boxed{} \rightarrow \boxed{\text{P}}$$

$2^5 = \boxed{} \rightarrow \boxed{W}$

$$2^3 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$16^2 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$14^2 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$9^2 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$3^5 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$22^2 = \boxed{} \rightarrow \boxed{\mathbf{B}}$$

$$5^3 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$3^2 = \boxed{} \rightarrow \boxed{1}$$

$$17^2 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$2^6 = \boxed{} \rightarrow \boxed{\text{C}}$$

Scratch space:

CLUE 4

Order of operations

Solving the multi step security override sequence cleared the corrupted sensor data.

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

A											A			A		A
9	110	78	36	114	56	115	27	46	36	27	9	114	13	9	114	9

	A						A							
105	9	49	20	78	87	114	13	9	110	49	56	46	114	46

$3 + 3 \times 2 = \square \rightarrow \text{A}$

$10 \times 3 - 3 = \square \rightarrow \text{B}$

$5 \times 11 - 6 = \square \rightarrow \text{S}$

$6 \times 9 - 8 = \square \rightarrow \text{E}$

$74 + 9 \times 4 = \square \rightarrow \text{T}$

$12 \times 10 - 6 = \square \rightarrow \text{N}$

$9 + 2 \times 2 = \square \rightarrow \text{D}$

$12 \times 12 - 29 = \square \rightarrow \text{Y}$

$18 + 6 \times 3 = \square \rightarrow \text{R}$

$33 + 9 \times 6 = \square \rightarrow \text{U}$

$91 + 2 \times 7 = \square \rightarrow \text{W}$

$7 \times 4 - 8 = \square \rightarrow \text{F}$

$42 + 6 \times 6 = \square \rightarrow \text{O}$

$7 \times 12 - 28 = \square \rightarrow \text{C}$

Scratch space:

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

Finding the root dimensions of the square cargo grid pinpointed 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:

$\sqrt{16} = \boxed{}$

$\sqrt{81} = \boxed{}$

$\sqrt{36} = \boxed{}$

$\sqrt{144} = \boxed{}$

$\sqrt{100} = \boxed{}$

$\sqrt{1} = \boxed{}$

$\sqrt{9} = \boxed{}$

$\sqrt{25} = \boxed{}$

$\sqrt{4} = \boxed{}$

$\sqrt{64} = \boxed{}$

$\sqrt{49} = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fired the laser cutlass at the vault, then activated the stego shield against guards.
2. The villain hooked the fossil pod with the cyber hook, then launched the pterodactyl flyer as a decoy.
3. The villain blasted the gravity net around the safe, then launched the pterodactyl flyer as a decoy.
4. The villain hooked the fossil pod with the cyber hook, then deployed the raptor drone to guard the door.
5. The villain slashed through the starboard bulkhead, then deployed the raptor drone to guard the door.
6. The villain hacked the astro cannon control panel, then deployed the raptor drone to guard the door.
7. The villain fired the laser cutlass at the vault, then launched the pterodactyl flyer as a decoy.
8. The villain blasted the gravity net around the safe, then piloted the t-rex mech into the corridor.
9. The villain fired the laser cutlass at the vault, then deployed the raptor drone to guard the door.
10. The villain hacked the astro cannon control panel, then activated the stego shield against guards.
11. The villain slashed through the starboard bulkhead, then piloted the t-rex mech into the corridor.
12. The villain hacked the astro cannon control panel, then drove the tricera tank through the airlock.

Answer Key

The Nebula Raptor Raid

Culprit: Astro Rex

Cyber Hook · T-Rex Mech · Left Handed · Cyber Bandana · Sonic Boom

Trail: Start 21 → Clue 1 16 → Clue 2 8 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE RAIDERS DO NOT HAVE A PTERODACTYL FLYER"

legs 5 and 12, hypotenuse = 13 (T) · legs 80 and 84, hypotenuse = 116 (E) · legs 21 and 72, hypotenuse = 75 (N) · legs 12 and 35, hypotenuse = 37 (S) · legs 24 and 45, hypotenuse = 51 (I) · legs 9 and 40, hypotenuse = 41 (R) · legs 9 and 12, hypotenuse = 15 (C) · legs 25 and 60, hypotenuse = 65 (A) · legs 36 and 105, hypotenuse = 111 (O) · legs 40 and 75, hypotenuse = 85 (L) · legs 27 and 120, hypotenuse = 123 (H) · legs 8 and 15, hypotenuse = 17 (D) · legs 35 and 120, hypotenuse = 125 (V) · legs 3 and 4, hypotenuse = 5 (F) · legs 28 and 96, hypotenuse = 100 (Y) · legs 18 and 80, hypotenuse = 82 (P)

Clue 2 (Square roots): "THE ATTACKER HELD THE LASER IN LEFT HAND"

$\sqrt{196} = 14$ (T) · $\sqrt{9} = 3$ (H) · $\sqrt{121} = 11$ (N) · $\sqrt{169} = 13$ (S) · $\sqrt{441} = 21$ (F) · $\sqrt{144} = 12$ (D) · $\sqrt{225} = 15$ (R) · $\sqrt{36} = 6$ (I) · $\sqrt{289} = 17$ (L) · $\sqrt{576} = 24$ (E) · $\sqrt{16} = 4$ (K) · $\sqrt{256} = 16$ (A) · $\sqrt{400} = 20$ (C)

Clue 3 (Exponents): "THE PILOT DEFENDED WITH A SONIC BOOM"

$3^3 = 27$ (T) · $10^2 = 100$ (L) · $5^2 = 25$ (S) · $15^2 = 225$ (O) · $6^2 = 36$ (P) · $2^5 = 32$ (W) · $2^3 = 8$ (H) · $16^2 = 256$ (E) · $14^2 = 196$ (F) · $9^2 = 81$ (M) · $3^5 = 243$ (N) · $22^2 = 484$ (B) · $5^3 = 125$ (D) · $3^2 = 9$ (I) · $17^2 = 289$ (A) · $2^6 = 64$ (C)

Clue 4 (Order of operations): "A TORN CYBER BANDANA WAS FOUND AT SCENE"

$3 + 3 \times 2 = 9$ (A) · $10 \times 3 - 3 = 27$ (B) · $5 \times 11 - 6 = 49$ (S) · $6 \times 9 - 8 = 46$ (E) · $74 + 9 \times 4 = 110$ (T) · $12 \times 10 - 6 = 114$ (N) · $9 + 2 \times 2 = 13$ (D) · $12 \times 12 - 29 = 115$ (Y) · $18 + 6 \times 3 = 36$ (R) · $33 + 9 \times 6 = 87$ (U) · $91 + 2 \times 7 = 105$ (W) · $7 \times 4 - 8 = 20$ (F) · $42 + 6 \times 6 = 78$ (O) · $7 \times 12 - 28 = 56$ (C)

Clue 5 (Square roots): surviving statement is box 11 → Astro Rex

$\sqrt{16} = 4$ · $\sqrt{81} = 9$ · $\sqrt{36} = 6$ · $\sqrt{144} = 12$ · $\sqrt{100} = 10$ · $\sqrt{1} = 1$ · $\sqrt{9} = 3$ · $\sqrt{25} = 5$ · $\sqrt{4} = 2$ · $\sqrt{64} = 8$ · $\sqrt{49} = 7$