The Cyber-Unicorn Syndicate

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

Detective: _____ **Date:** _____

A high-tech cyber-unicorn has breached the central server meadow and scrambled the star-crystal core. Detective, gather evidence from the security nodes to identify the culprit before the whole digital meadow goes dark.

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 rogue cyber-unicorn is _____

Possible suspects

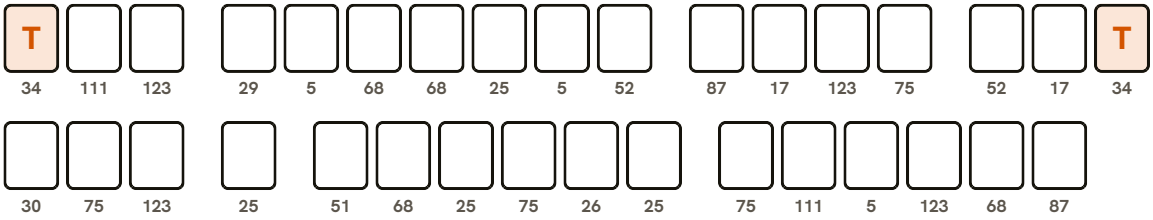
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	MAIN MODULE	AUXILIARY GEAR	DOMINANT HAND	MANE WIRES	DEFENSE COUNTER
Vapor Spark	Gear Clockwork Drive	Rainbow Dash	Left Handed	Neon Pink Wires	Magnet Harvester
Unit Unicorn	Laser Horn Beam	Prismatic Laser	Right Handed	Neon Pink Wires	EMP Pulse Blast
Robo Realm	Neon Mane Pulse	Rainbow Dash	Left Handed	Neon Pink Wires	Magnet Harvester
Glitter Gear	Neon Mane Pulse	Hyper Drive	Left Handed	Neon Pink Wires	Magnet Harvester
Sparkle Bot	Titanium Trotting	Rainbow Dash	Left Handed	Rainbow Fiber Optics	Rusting Water Spray
Circuit Spark	Neon Mane Pulse	Glitter Blast	Left Handed	Silver Metallic Mane	Rusting Water Spray
Laser Hoof	Laser Horn Beam	Prismatic Laser	Left Handed	Silver Metallic Mane	Magnet Harvester
Matrix Mare	Laser Horn Beam	Plasma Shield	Right Handed	Silver Metallic Mane	EMP Pulse Blast
Chrome Mane	Titanium Trotting	Rainbow Dash	Left Handed	Neon Pink Wires	Rusting Water Spray
Flux Fantasy	Neon Mane Pulse	Glitter Blast	Right Handed	Neon Pink Wires	Rusting Water Spray
Titanium Tail	Magical Overdrive	Glitter Blast	Right Handed	Neon Pink Wires	Magnet Harvester
Cyber Starlight	Laser Horn Beam	Prismatic Laser	Left Handed	Rainbow Fiber Optics	Magnet Harvester
Optic Orbit	Magical Overdrive	Rainbow Dash	Right Handed	Neon Pink Wires	Magnet Harvester
Bolt Beauty	Laser Horn Beam	Prismatic Laser	Left Handed	Neon Pink Wires	Magnet Harvester
Neon Trotter	Neon Mane Pulse	Hyper Drive	Right Handed	Silver Metallic Mane	EMP Pulse Blast
Alloy Aura	Titanium Trotting	Hyper Drive	Left Handed	Silver Metallic Mane	Rusting Water Spray
Steel Twinkle	Magical Overdrive	Plasma Shield	Left Handed	Neon Pink Wires	Magnet Harvester
Byte Pegasus	Neon Mane Pulse	Glitter Blast	Left Handed	Neon Pink Wires	EMP Pulse Blast
Dazzle Drive	Magical Overdrive	Hyper Drive	Right Handed	Rainbow Fiber Optics	Magnet Harvester
Starlight Core	Titanium Trotting	Prismatic Laser	Right Handed	Neon Pink Wires	Rusting Water Spray
Prism Mecha	Neon Mane Pulse	Prismatic Laser	Right Handed	Neon Pink Wires	EMP Pulse Blast

CLUE 1 Pythagorean theorem

To calculate the direct distance along the security laser diagonal, analyze the right triangle coordinates.

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



legs 16 and 30, hypotenuse = ☐ → **T**

legs 21 and 72, hypotenuse = ☐ → **S**

legs 36 and 105, hypotenuse = ☐ → **H**

legs 32 and 60, hypotenuse = ☐ → **L**

legs 20 and 48, hypotenuse = ☐ → **N**

legs 20 and 21, hypotenuse = ☐ → **V**

legs 8 and 15, hypotenuse = ☐ → **O**

legs 10 and 24, hypotenuse = ☐ → **M**

legs 15 and 20, hypotenuse = ☐ → **A**

legs 3 and 4, hypotenuse = ☐ → **I**

legs 27 and 120, hypotenuse = ☐ → **E**

legs 24 and 45, hypotenuse = ☐ → **P**

legs 60 and 63, hypotenuse = ☐ → **D**

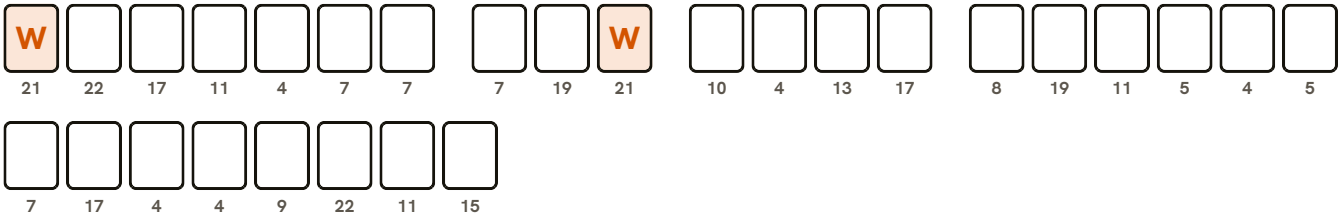
legs 18 and 24, hypotenuse = ☐ → **U**

Scratch space:

CLUE 2 Square roots

To decode the power core area into exact side length dimensions, solve the square root readout.

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



sqrt(441) = ☐ → W

sqrt(16) = ☐ → E

sqrt(169) = ☐ → F

sqrt(25) = ☐ → D

sqrt(100) = ☐ → L

sqrt(121) = ☐ → N

sqrt(81) = ☐ → R

sqrt(64) = ☐ → H

sqrt(225) = ☐ → G

sqrt(49) = ☐ → S

sqrt(289) = ☐ → T

sqrt(484) = ☐ → I

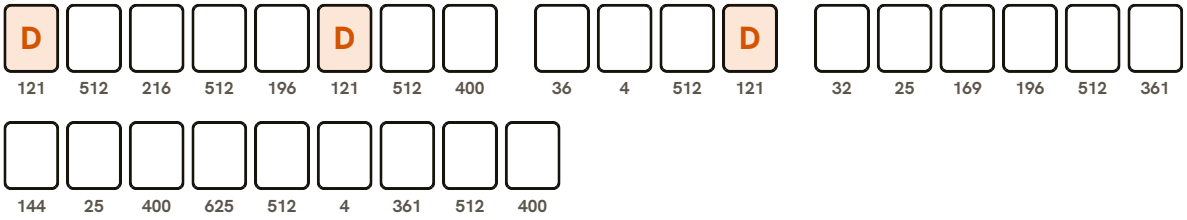
sqrt(361) = ☐ → A

Scratch space:

CLUE 3 Exponents

To calculate the rapid growth rate of the rogue glitter code across servers, evaluate the exponential expansion.

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



11^2 = ☐ → D

5^4 = ☐ → V

2^5 = ☐ → M

19^2 = ☐ → T

12^2 = ☐ → H

13^2 = ☐ → G

8^3 = ☐ → E

5^2 = ☐ → A

20^2 = ☐ → R

14^2 = ☐ → N

2^2 = ☐ → S

6^3 = ☐ → F

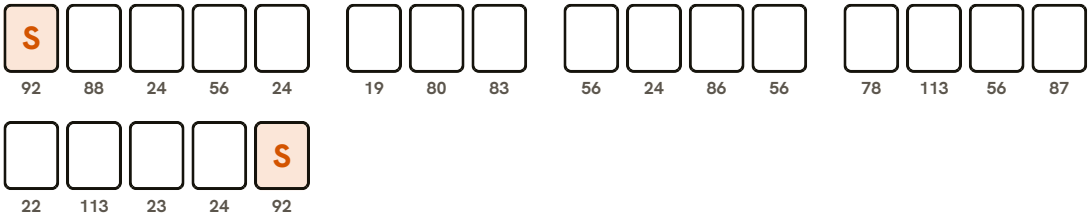
6^2 = ☐ → U

Scratch space:

CLUE 4 Order of operations

To restore the command grid, evaluate the multi step system override code using proper order of operations.

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



9 × 12 - 16 = ☐ → S	11 × 8 - 8 = ☐ → A	7 × 9 - 7 = ☐ → N
10 × 10 - 14 = ☐ → O	51 + 9 × 3 = ☐ → P	6 × 4 - 1 = ☐ → R
60 + 9 × 3 = ☐ → K	57 + 8 × 7 = ☐ → I	58 + 5 × 5 = ☐ → D
14 + 5 × 2 = ☐ → E	5 × 8 - 21 = ☐ → H	6 × 4 - 2 = ☐ → W
53 + 7 × 5 = ☐ → C		

Scratch space:

CLUE 5 Square roots - the last clue

> To determine the precise grid boundary radius, solve the square root formula from the sensor node.

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(1) = ☐ sqrt(16) = ☐ sqrt(121) = ☐ sqrt(64) = ☐ sqrt(144) = ☐

sqrt(4) = ☐ sqrt(49) = ☐ sqrt(9) = ☐ sqrt(100) = ☐ sqrt(25) = ☐

sqrt(36) = ☐

Step 2 - cross out the sentence with each answer:

1. The villain emitted a neon mane pulse, then executed a rainbow dash.
2. The villain fired a laser horn beam, then blasted glitter canisters.
3. The villain activated titanium trotting, then fired a prismatic laser.
4. The villain engaged gear clockwork drive, then executed a rainbow dash.
5. The villain triggered magical overdrive, then executed a rainbow dash.
6. The villain emitted a neon mane pulse, then fired a prismatic laser.
7. The villain triggered magical overdrive, then raised a plasma shield.
8. The villain engaged gear clockwork drive, then blasted glitter canisters.
9. The villain emitted a neon mane pulse, then engaged the hyper drive.
10. The villain engaged gear clockwork drive, then engaged the hyper drive.
11. The villain fired a laser horn beam, then fired a prismatic laser.
12. The villain activated titanium trotting, then blasted glitter canisters.

TEACHER / PARENT

Answer Key

The Cyber-Unicorn Syndicate

Culprit: Glitter Gear

Neon Mane Pulse · Hyper Drive · Left Handed · Neon Pink Wires · Magnet Harvester

Trail: Start 21 → Clue 1 19 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE VILLAIN DOES NOT USE A PLASMA SHIELD"

legs 16 and 30, hypotenuse = 34 (T) · legs 21 and 72, hypotenuse = 75 (S) · legs 36 and 105, hypotenuse = 111 (H) · legs 32 and 60, hypotenuse = 68 (L) · legs 20 and 48, hypotenuse = 52 (N) · legs 20 and 21, hypotenuse = 29 (V) · legs 8 and 15, hypotenuse = 17 (O) · legs 10 and 24, hypotenuse = 26 (M) · legs 15 and 20, hypotenuse = 25 (A) · legs 3 and 4, hypotenuse = 5 (I) · legs 27 and 120, hypotenuse = 123 (E) · legs 24 and 45, hypotenuse = 51 (P) · legs 60 and 63, hypotenuse = 87 (D) · legs 18 and 24, hypotenuse = 30 (U)

Clue 2 (Square roots): "WITNESS SAW LEFT HANDED STEERING"

sqrt(441) = 21 (W) · sqrt(16) = 4 (E) · sqrt(169) = 13 (F) · sqrt(25) = 5 (D) · sqrt(100) = 10 (L) · sqrt(121) = 11 (N) · sqrt(81) = 9 (R) · sqrt(64) = 8 (H) · sqrt(225) = 15 (G) · sqrt(49) = 7 (S) · sqrt(289) = 17 (T) · sqrt(484) = 22 (I) · sqrt(361) = 19 (A)

Clue 3 (Exponents): "DEFENDER USED MAGNET HARVESTER"

11^2 = 121 (D) · 5^4 = 625 (V) · 2^5 = 32 (M) · 19^2 = 361 (T) · 12^2 = 144 (H) · 13^2 = 169 (G) · 8^3 = 512 (E) · 5^2 = 25 (A) · 20^2 = 400 (R) · 14^2 = 196 (N) · 2^2 = 4 (S) · 6^3 = 216 (F) · 6^2 = 36 (U)

Clue 4 (Order of operations): "SCENE HAD NEON PINK WIRES"

9 × 12 - 16 = 92 (S) · 11 × 8 - 8 = 80 (A) · 7 × 9 - 7 = 56 (N) · 10 × 10 - 14 = 86 (O) · 51 + 9 × 3 = 78 (P) · 6 × 4 - 1 = 23 (R) · 60 + 9 × 3 = 87 (K) · 57 + 8 × 7 = 113 (I) · 58 + 5 × 5 = 83 (D) · 14 + 5 × 2 = 24 (E) · 5 × 8 - 21 = 19 (H) · 6 × 4 - 2 = 22 (W) · 53 + 7 × 5 = 88 (C)

Clue 5 (Square roots): surviving statement is box 9 → Glitter Gear

sqrt(1) = 1 · sqrt(16) = 4 · sqrt(121) = 11 · sqrt(64) = 8 · sqrt(144) = 12 · sqrt(4) = 2 · sqrt(49) = 7 · sqrt(9) = 3 · sqrt(100) = 10 · sqrt(25) = 5 · sqrt(36) = 6