



The Silicon Spire Sabotage

Grade 8 math · Exponents, Square roots, Pythagorean theorem, Order of operations, Two-step equations · Reading level grades 7-9

Detective: _____ Date: _____

A rogue android has bypassed the security protocols of the Silicon Spire, stealing the master blueprint for the city's power grid. We must analyze the electronic footprint left behind and calculate our way to the culprit.

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 android is _____

Possible suspects

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

NAME	PRIMARY TOOL	SECONDARY SENSOR	CHASSIS DECAL	WIRING COLOR	REBOOT SWITCH
Matrix	nanite repairing	thermal sensing	right-side port	gold wires	high frequency sounds
Einstein	nanite repairing	radar scanning	left-side port	gold wires	strong magnets
Bolt	plasma heating	infrared vision	left-side port	silver fibers	high frequency sounds
Edison	magnetic lifting	radar scanning	left-side port	copper coils	extreme cold
Widget	sonic welding	thermal sensing	left-side port	silver fibers	strong magnets
Sparky	magnetic lifting	infrared vision	right-side port	gold wires	high frequency sounds
Gearbox	sonic welding	radar scanning	left-side port	copper coils	strong magnets
Rustbolt	sonic welding	thermal sensing	left-side port	gold wires	high frequency sounds
Tesla	sonic welding	infrared vision	right-side port	silver fibers	high frequency sounds
Sprocket	laser cutting	sonar mapping	right-side port	gold wires	extreme cold
Gizmo	magnetic lifting	sonar mapping	right-side port		

CLUE 1 Exponents

The Silicon Spire security network logs data in exponential byte chunks. To decrypt the first data block, calculate the final storage capacity of the server array.

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

T			T						T											T						
64	125	100	64	441	361	27	100	64	243	216	100	144	16	216	64	256	144	100								
						T																				
81	343	243	441	361	64	361	441	512	196	343	16	27														

CLUE 2 Square roots

We found a perfectly square motherboard left behind by the intruder. Finding its side length by computing the square root of its area reveals the next lock code.

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

T			T												T
13	6	18	13	6	12	18	14	6	5	23	5	17	18	14	13
							T								
23	12	3	18	22	7	8	13								

$\text{sqrt}(169) = \square \rightarrow \text{T}$	$\text{sqrt}(324) = \square \rightarrow \text{E}$	$\text{sqrt}(529) = \square \rightarrow \text{S}$
<		

CLUE 5**Two-step equations - the last clue**

The security drone has a draining battery that loses charge at a steady rate. Solve the two-step equation to find how many minutes it ran before dying.

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:

$3x + 4 = 7, x = \boxed{}$

$3x + 5 = 11, x = \boxed{}$

$6x + 10 = 40, x = \boxed{}$

$3x + 5 = 26, x = \boxed{}$

$5x + 3 = 63, x = \boxed{}$

$5x + 10 = 25, x = \boxed{}$

$6x + 1 = 49, x = \boxed{}$

$2x + 10 = 30, x = \boxed{}$

Answer Key

The Silicon Spire Sabotage

Culprit: Circuit

magnetic lifting · radar scanning · left-side port · gold wires · high frequency sounds

Trail: Start 21 → Clue 1 18 → Clue 2 9 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Exponents): "THE TARGET DOES NOT USE LIDAR TRACKING"

$2^6 = 64$ (T) · $3^5 = 243$ (D) · $3^3 = 27$ (G) · $14^2 = 196$ (K) · $21^2 = 441$ (A) · $2^9 = 512$ (C) · $3^4 = 81$ (L) · $6^3 = 216$ (O) · $12^2 = 144$ (S) · $2^4 = 16$ (N) · $5^3 = 125$ (H) · $16^2 = 256$ (U) · $7^3 = 343$ (I) · $19^2 = 361$ (R) · $10^2 = 100$ (E)

Clue 2