



The Mystery of the Missing Cyber-Core

Grade 5 math · Fractions of a number, Order of operations, Multiplication, Rounding, Division · Reading level grades 5-6

Detective: _____ Date: _____

A high-powered cyber-core was stolen from the central assembly line at Gearopolis. The factory guards witnessed a rogue bot breach the vault, but the intruder slipped into the maintenance bays before anyone could identify them. Solve the clues to expose 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 Bot 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 MODULE	SENSOR POSITION	WIRING MATERIAL	COUNTERMEASURE
Hedy Lamarr	Plasma Shield	Hover Drive	Right Antenna Tilted	Chrome Wires	Oil Slick
Dorothy Vaughan	Rocket Boost	Overclock Speed	Right Antenna Tilted	Silver Fiber	Oil Slick
Gordon Moore	Sonic Blast	Thermal Camo	Left Antenna Tilted	Chrome Wires	Oil Slick
Nikola Tesla	Rocket Boost	Nanite Repair	Left Antenna Tilted	Silver Fiber	Oil Slick
George Devol	Laser Welding	Thermal Camo	Left Antenna Tilted	Chrome Wires	Magnet Field
Claude Shannon	Plasma Shield	Giga Shield	Right Antenna Tilted	Silver Fiber	Magnet Field
Grace Hopper	Magnetic Grip	Hover Drive	Left Antenna Tilted	Chrome Wires	Rust Spray
Anita Borg	Rocket Boost	Nanite Repair	Left Antenna Tilted	Chrome Wires	Oil Slick
Karel Capek	Sonic Blast	Hover Drive	Right Antenna Tilted	Chrome Wires	Oil Slick
Cynthia Breazeal	Rocket Boost	Thermal Camo	Right Antenna Tilted	Silver Fiber	Rust Spray
Alan Turing	Magnetic Grip	Nanite Repair	Left Antenna Tilted	Chrome Wires	Oil Slick
Rodney Brooks	Sonic Blast	Hover Drive	Right Antenna Tilted	Silver Fiber	Rust Spray
Marc Raibert	Plasma Shield	Overclock Speed	Left Antenna Tilted	Chrome Wires	Oil Slick
Katharine Johnson	Laser Welding	Giga Shield	Right Antenna Tilted	Copper Coils	Magnet Field
Isaac Asimov	Rocket Boost	Giga Shield	Right Antenna Tilted	Chrome Wires	Oil Slick
Margaret Hamilton	Laser Welding	Nanite Repair	Left Antenna Tilted	Copper Coils	Oil Slick
Joseph Engelberger	Rocket Boost	Thermal Camo	Left Antenna Tilted	Chrome Wires	Rust Spray
Ayanna Howard	Plasma Shield	Giga Shield	Left Antenna Tilted	Chrome Wires	Oil Slick
Norbert Wiener	Magnetic Grip	Nanite Repair	Left Antenna Tilted	Copper Coils	Rust Spray
Ada Lovelace	Sonic Blast	Giga Shield	Left Antenna Tilted	Silver Fiber	Oil Slick
Radia Perlman	Rocket Boost	Overclock Speed	Right Antenna Tilted	Chrome Wires	Oil Slick

Fractions of a number

The main vault computer logs only a fraction of the energy core readings from the central grid.

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

A 2x10 grid of boxes. The top row contains the following values from left to right: 25 (with an orange 'T' in the top-left corner), 37, 27, 9, 36, 18, 3, 27, 35, 36, 25 (with an orange 'T' in the top-right corner), 23, 36, 27, 16, 20, 36, 25 (with an orange 'T' in the top-right corner). The bottom row contains the following values from left to right: 3, 16, 27, 18, 2, 18, 17, 16, 37, 2, 27, 7, 23.

$$1/8 \text{ of } 200 = \boxed{} \rightarrow \boxed{\text{T}}$$

$3/10$ of $90 = \boxed{} \rightarrow \boxed{\text{E}}$

$$3/6 \text{ of } 74 = \boxed{} \rightarrow \boxed{\text{H}}$$

$1/5$ of 175 = $\rightarrow$ **B**

5/6 of 24 = → **N**

$2/8$ of 68 = $\rightarrow$ **A**

$$2/10 \text{ of } 35 = \boxed{} \rightarrow \boxed{\text{L}}$$

$\frac{3}{8}$ of 24 = $\rightarrow$ **R**

$4/8$ of $46 = \boxed{} \rightarrow \boxed{\text{D}}$

$3/10$ of 60 = $\rightarrow$ **G**

9/10 of 40 = →

$3/6$ of $32 = \square \rightarrow \boxed{\text{S}}$

2/4 of 4 = $\rightarrow$

$$1/8 \text{ of } 24 = \boxed{} \rightarrow \boxed{\text{U}}$$

Scratch space:

CLUE 2

Order of operations

To unlock the encrypted server file, you must solve a multi step security sequence.

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

W									W								
8	37	12	14	35	64	64	64	49	8	10	35	54	12				
49	14	12	35	14	14	49	12	37	10	12	35	34	66	14	17	66	12

$3 \times 9 - 19 = \square \rightarrow \boxed{W}$

$5 \times 11 - 6 = \square \rightarrow \boxed{A}$

$11 \times 7 - 13 = \square \rightarrow \boxed{S}$

$6 \times 9 - 17 = \square \rightarrow \boxed{I}$

$30 + 2 \times 2 = \square \rightarrow \boxed{D}$

$15 + 4 \times 5 = \square \rightarrow \boxed{E}$

$6 + 3 \times 2 = \square \rightarrow \boxed{T}$

$2 + 4 \times 2 = \square \rightarrow \boxed{L}$

$8 \times 11 - 22 = \square \rightarrow \boxed{O}$

$8 + 3 \times 2 = \square \rightarrow \boxed{N}$

$30 + 3 \times 8 = \square \rightarrow \boxed{F}$

$2 \times 11 - 5 = \square \rightarrow \boxed{B}$

Scratch space:

Multiplication facts (1-12)

Scanning the storage bay shows stacks of robot battery packs arranged in equal rows.

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

2 1 121 120 110 55 88 33 7 121 42 33 121 33 2 1 121 25

132 7 7 18 144 2 1 132 144 81 56 81 144 49 30

$2 \times 1 = \boxed{} \rightarrow \boxed{\text{T}}$

$10 \times 11 = \boxed{} \rightarrow \boxed{\mathbf{U}}$

$3 \times 6 = \square \rightarrow \mathbf{W}$

$10 \times 3 = \square \rightarrow \mathbf{K}$

$7 \times 1 = \boxed{} \rightarrow \boxed{\text{F}}$

$3 \times 11 = \square \rightarrow \mathbf{D}$

$11 \times 5 = \square \rightarrow \boxed{\mathbf{A}}$

$7 \times 8 = \square \rightarrow \boxed{\mathbf{S}}$

$11 \times 11 = \square \rightarrow \boxed{\mathbf{E}}$

$7 \times 7 = \square \rightarrow \boxed{\text{C}}$

$5 \times 5 =$ $\rightarrow$ **M**

$12 \times 12 = \boxed{} \rightarrow \boxed{1}$

$11 \times 8 = \square \rightarrow \boxed{\mathbf{R}}$

$12 \times 10 = \boxed{} \rightarrow \boxed{\mathbf{G}}$

$9 \times 9 =$ $\rightarrow$ **L**

$11 \times 12 = \boxed{} \rightarrow \boxed{}$

$1 \times 1 = \boxed{} \rightarrow \boxed{\text{H}}$

$$6 \times 7 = \boxed{} \rightarrow \boxed{\text{N}}$$

Scratch space:

Rounding

The automated diagnostic scanner only displays rounded values on its screen.

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

Diagram illustrating the distribution of 10000 items across 100 bins. The first row shows 10 bins with values: 200, 2900, 7000, 2900, 70, 7000, 170, 2300, 2900, 30, 500, 1700, 9000, 200, 70, 130, 50, 500, 4300, 2900. The second row shows 10 bins with values: 230, 170, 50, 2900, 700, 5000, 7000, 700, 70, 2900, 9000, 2900. The 14th bin in the first row and the 5th bin in the second row are highlighted in orange and labeled 'D'.

Round 153 to the nearest hundred $\rightarrow$ **D**

Round 8,673 to the nearest thousand $\rightarrow$ **N**

Round 167 to the nearest ten $\rightarrow$

Round 4,262 to the nearest hundred → **M**

Round 128 to the nearest ten $\rightarrow$ **H**

Round 29 to the nearest ten $\rightarrow$ **F**

Round 6,901 to the nearest thousand $\rightarrow$ **T**

Round 69 to the nearest ten $\rightarrow$ **C**

Round 536 to the nearest hundred $\rightarrow$ **0**

Round 2,295 to the nearest hundred $\rightarrow$ **V**

Round 2,939 to the nearest hundred → **E**

Round 53 to the nearest ten $\rightarrow$ **R**

Round 4,518 to the nearest thousand → **A**

Round 1,722 to the nearest hundred $\rightarrow$ **U**

Round 226 to the nearest ten $\rightarrow$ **W**

Round 742 to the nearest hundred $\rightarrow$ **S**

Scratch space:

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

Distributing the spare circuits equally among all five repair bays reveals the final system key.

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:

$12 \div 3 = \boxed{}$

$20 \div 2 = \boxed{}$

$132 \div 11 = \boxed{}$

$81 \div 9 = \boxed{}$

$54 \div 9 = \boxed{}$

$5 \div 1 = \boxed{}$

$14 \div 7 = \boxed{}$

$56 \div 8 = \boxed{}$

$5 \div 5 = \boxed{}$

$56 \div 7 = \boxed{}$

$11 \div 1 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain welded open the security gate, then deployed a giga shield.
2. The villain boosted over the perimeter wall, then turned on thermal camo.
3. The villain boosted over the perimeter wall, then triggered nanite repair.
4. The villain shattered the alarm glass with sound, then turned on thermal camo.
5. The villain welded open the security gate, then turned on thermal camo.
6. The villain grabbed the steel vault handle, then engaged hover drive.
7. The villain shielded the getaway route, then deployed a giga shield.
8. The villain grabbed the steel vault handle, then deployed a giga shield.
9. The villain boosted over the perimeter wall, then deployed a giga shield.
10. The villain grabbed the steel vault handle, then triggered nanite repair.
11. The villain shielded the getaway route, then turned on thermal camo.
12. The villain shielded the getaway route, then activated overclock speed.

Answer Key

The Mystery of the Missing Cyber-Core

Culprit: Anita Borg

Rocket Boost · Nanite Repair · Left Antenna Tilted · Chrome Wires · Oil Slick

Trail: Start 21 → Clue 1 16 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Fractions of a number): "THE ROGUE BOT DOES NOT USE GIGA SHIELD"

$\frac{1}{8}$ of 200 = 25 (T) · $\frac{3}{10}$ of 90 = 27 (E) · $\frac{3}{6}$ of 74 = 37 (H) · $\frac{1}{5}$ of 175 = 35 (B) · $\frac{5}{6}$ of 24 = 20 (N) · $\frac{2}{8}$ of 68 = 17 (A) · $\frac{2}{10}$ of 35 = 7 (L) · $\frac{3}{8}$ of 24 = 9 (R) · $\frac{4}{8}$ of 46 = 23 (D) · $\frac{3}{10}$ of 60 = 18 (G) · $\frac{9}{10}$ of 40 = 36 (O) · $\frac{3}{6}$ of 32 = 16 (S) · $\frac{2}{4}$ of 4 = 2 (I) · $\frac{1}{8}$ of 24 = 3 (U)

Clue 2 (Order of operations): "WITNESS SAW LEFT ANTENNA TILTED ON BOT"

$3 \times 9 - 19 = 8$ (W) · $5 \times 11 - 6 = 49$ (A) · $11 \times 7 - 13 = 64$ (S) · $6 \times 9 - 17 = 37$ (I) · $30 + 2 \times 2 = 34$ (D) · $15 + 4 \times 5 = 35$ (E) · $6 + 3 \times 2 = 12$ (T) · $2 + 4 \times 2 = 10$ (L) · $8 \times 11 - 22 = 66$ (O) · $8 + 3 \times 2 = 14$ (N) · $30 + 3 \times 8 = 54$ (F) · $2 \times 11 - 5 = 17$ (B)

Clue 3 (Multiplication facts (1-12)): "THE GUARD FENDEED THEM OFF WITH OIL SLICK"

$2 \times 1 = 2$ (T) · $10 \times 11 = 110$ (U) · $3 \times 6 = 18$ (W) · $10 \times 3 = 30$ (K) · $7 \times 1 = 7$ (F) · $3 \times 11 = 33$ (D) · $11 \times 5 = 55$ (A) · $7 \times 8 = 56$ (S) · $11 \times 11 = 121$ (E) · $7 \times 7 = 49$ (C) · $5 \times 5 = 25$ (M) · $12 \times 12 = 144$ (I) · $11 \times 8 = 88$ (R) · $12 \times 10 = 120$ (G) · $9 \times 9 = 81$ (L) · $11 \times 12 = 132$ (O) · $1 \times 1 = 1$ (H) · $6 \times 7 = 42$ (N)

Clue 4 (Rounding): "DETECTIVE FOUND CHROME WIRES AT SCENE"

Round 153 to the nearest hundred = 200 (D) · Round 8,673 to the nearest thousand = 9000 (N) · Round 167 to the nearest ten = 170 (I) · Round 4,262 to the nearest hundred = 4300 (M) · Round 128 to the nearest ten = 130 (H) · Round 29 to the nearest ten = 30 (F) · Round 6,901 to the nearest thousand = 7000 (T) · Round 69 to the nearest ten = 70 (C) · Round 536 to the nearest hundred = 500 (O) · Round 2,295 to the nearest hundred = 2300 (V) · Round 2,939 to the nearest hundred = 2900 (E) · Round 53 to the nearest ten = 50 (R) · Round 4,518 to the nearest thousand = 5000 (A) · Round 1,722 to the nearest hundred = 1700 (U) · Round 226 to the nearest ten = 230 (W) · Round 742 to the nearest hundred = 700 (S)

Clue 5 (Division facts (1-12)): surviving statement is box 3 → Anita Borg

$12 \div 3 = 4$ · $20 \div 2 = 10$ · $132 \div 11 = 12$ · $81 \div 9 = 9$ · $54 \div 9 = 6$ · $5 \div 1 = 5$ · $14 \div 7 = 2$ · $56 \div 8 = 7$ · $5 \div 5 = 1$ · $56 \div 7 = 8$ · $11 \div 1 = 11$