



# The Code Room Glitch

Grade 10 math · Multiplication, Pythagorean theorem, Square roots, Exponents, Division · Reading level grades 1-2

Detective: \_\_\_\_\_ Date: \_\_\_\_\_

A sneaky glitch hacker locked the main game server! Our system is down. We need to find the hacker before the screen goes totally blank.

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 glitch hacker is** \_\_\_\_\_

## Possible suspects

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

| NAME              | HACKING TOOL  | COMPANION BOT | TYPING HAND  | LED GLOW COLOR | SYSTEM BUG    |
|-------------------|---------------|---------------|--------------|----------------|---------------|
| Dex Byte          | code injector | hover-bot     | right handed | bright green   | power drains  |
| Katherine Johnson | signal jammer | spider-bot    | left handed  | neon blue      | water spills  |
| Guido van Rossum  | worm drive    | spider-bot    | left handed  | bright green   | power drains  |
| Meg Hertz         | worm drive    | robo-dog      | left handed  | neon blue      | magnet fields |
| Max Chip          | worm drive    | neon-cat      | left handed  | neon blue      | power drains  |
| Joy Buolamwini    | code injector | spider-bot    | left handed  | neon blue      | magnet fields |
| Grace Hopper      | signal jammer | spider-bot    | left handed  | bright green   | water spills  |
| Bill Gates        | worm drive    | hover-bot     | left handed  | neon blue      | magnet fields |
| Ada Lovelace      | code injector | neon-cat      | right handed | neon blue      | magnet fields |
| Alan Turing       | worm drive    | hover-bot     | right handed | laser red      | magnet fields |
| Margaret Hamilton | signal jammer | hover-bot     | left handed  | neon blue      | magnet fields |
| Tim Berners Lee   | signal jammer | micro-drone   | left handed  | laser red      | magnet fields |
| Linus Torvalds    | bypass key    | robo-dog      | left handed  | laser red      | water spills  |
| Hedy Lamarr       | data cloner   | micro-drone   | left handed  | neon blue      | magnet fields |
| Pip Ram           | signal jammer | spider-bot    | left handed  | neon blue      | magnet fields |
| Steve Wozniak     | bypass key    | hover-bot     | left handed  | laser red      | magnet fields |
| Sheryl Sandberg   | bypass key    | neon-cat      | left handed  | neon blue      | power drains  |
| Sam Disk          | code injector | robo-dog      | right handed | neon blue      | magnet fields |
| Radia Perlman     | data cloner   | micro-drone   | left handed  | laser red      | water spills  |
| Gordon Moore      | code injector | spider-bot    | left handed  | laser red      | water spills  |
| Mia Vector        | data cloner   | neon-cat      | right handed | neon blue      | water spills  |

## CLUE 1

## Multiplication facts (1-12)

We count rows of glowing tablet screens to find the first code clue.

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

|    |    |    |    |    |     |    |    |     |   |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|-----|----|----|-----|---|----|----|----|----|----|----|----|----|-----|
| T  |    |    |    |    |     | T  |    |     |   |    |    |    |    |    |    |    |    |     |
| 11 | 8  | 56 | 24 | 72 | 32  | 11 | 70 | 8   | 8 | 15 | 70 | 77 | 56 | 25 | 28 | 50 | 56 | 110 |
|    |    | T  |    |    |     |    |    |     |   |    |    |    |    |    |    |    | T  |     |
| 55 | 50 | 11 | 8  | 15 | 132 | 56 | 15 | 110 | 7 | 32 | 28 | 56 | 25 | 2  | 50 | 11 |    |     |

$1 \times 11 =$

→

T

$3 \times 8 =$

→

G

$4 \times 8 =$

→

I

$1 \times 7 =$

→

P

$8 \times 7 =$

→

E

$7 \times 11 =$

→

K

$11 \times 12 =$

→

V

$5 \times 3 =$

→

A

$1 \times 2 =$

→

B

$11 \times 10 =$

→

S

$9 \times 8 =$

→

L

$7 \times 4 =$

→

D

$5 \times 5 =$

→

R

$4 \times 2 =$

→

H

$11 \times 5 =$

→

N

$5 \times 10 =$

→

O

$10 \times 7 =$

→

C

Scratch space:

**CLUE 2**

# Pythagorean theorem

The team measures a diagonal laser beam to map the escape route.

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

|    |     |    |     |    |     |    |    |    |    |    |    |    |     |     |     |     |    |     |  |   |  |
|----|-----|----|-----|----|-----|----|----|----|----|----|----|----|-----|-----|-----|-----|----|-----|--|---|--|
| T  |     |    |     |    |     |    |    |    |    | T  | T  |    |     |     |     |     |    |     |  | T |  |
| 39 | 100 | 40 | 116 | 52 | 116 | 82 | 40 | 51 | 39 | 39 | 29 | 82 | 40  | 111 | 26  | 15  | 39 | 100 |  |   |  |
|    |     |    |     | T  |     |    |    |    |    |    |    |    | T   |     |     |     |    |     |  |   |  |
| 37 | 123 | 75 | 29  | 39 | 100 | 40 | 15 | 65 | 75 | 40 | 34 | 39 | 100 | 87  | 123 | 111 |    |     |  |   |  |

legs 15 and 36, hypotenuse =  → **T**

legs 16 and 30, hypotenuse =  → **F**

legs 20 and 48, hypotenuse =  → **U**

legs 12 and 35, hypotenuse =  → **O**

legs 24 and 45, hypotenuse =  → **C**

legs 21 and 72, hypotenuse =  → **L**

legs 36 and 105, hypotenuse =  → **D**

legs 20 and 21, hypotenuse =  → **Y**

legs 10 and 24, hypotenuse =  → **W**

legs 25 and 60, hypotenuse =  → **R**

legs 24 and 32, hypotenuse =  → **E**

legs 9 and 12, hypotenuse =  → **I**

legs 60 and 63, hypotenuse =  → **A**

legs 28 and 96, hypotenuse =  → **H**

legs 27 and 120, hypotenuse =  → **N**

legs 80 and 84, hypotenuse =  → **S**

legs 18 and 80, hypotenuse =  → **P**

Scratch space:

## CLUE 3 Square roots

We find a square chip grid and look for its side length.

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

|    |   |    |    |    |    |    |    |    |    |    |    |    |   |    |    |
|----|---|----|----|----|----|----|----|----|----|----|----|----|---|----|----|
| T  |   |    |    |    |    |    |    |    |    |    |    |    |   |    |    |
| 16 | 4 | 2  | 4  | 13 | 18 | 14 | 2  | 7  | 7  | 13 | 6  | 13 | 8 | 13 | 15 |
|    |   |    |    |    | T  |    |    |    |    |    |    |    |   |    | T  |
| 25 | 7 | 19 | 9  | 23 | 16 | 5  | 18 | 14 | 15 | 9  | 13 | 21 | 6 | 2  | 16 |
|    |   |    |    |    |    |    |    |    |    |    |    |    |   |    |    |
| 25 | 5 | 2  | 11 | 24 | 23 |    |    |    |    |    |    |    |   |    |    |

$\sqrt{256} = \square \rightarrow \boxed{\text{T}}$

$\sqrt{529} = \square \rightarrow \boxed{\text{S}}$

$\sqrt{225} = \square \rightarrow \boxed{\text{Y}}$

$\sqrt{81} = \square \rightarrow \boxed{\text{M}}$

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

$\sqrt{4} = \square \rightarrow \boxed{\text{E}}$

$\sqrt{441} = \square \rightarrow \boxed{\text{G}}$

$\sqrt{324} = \square \rightarrow \boxed{\text{C}}$

$\sqrt{361} = \square \rightarrow \boxed{\text{O}}$

$\sqrt{16} = \square \rightarrow \boxed{\text{H}}$

$\sqrt{576} = \square \rightarrow \boxed{\text{D}}$

$\sqrt{625} = \square \rightarrow \boxed{\text{F}}$

$\sqrt{169} = \square \rightarrow \boxed{\text{A}}$

$\sqrt{196} = \square \rightarrow \boxed{\text{K}}$

$\sqrt{25} = \square \rightarrow \boxed{\text{I}}$

$\sqrt{36} = \square \rightarrow \boxed{\text{N}}$

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

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

Scratch space:

## CLUE 4 Exponents

A giant bug multiplies its size very fast as it copies itself.

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

|     |     |     |     |     |    |   |     |     |     |     |     |     |     |    |     |     |     |    |
|-----|-----|-----|-----|-----|----|---|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|
| T   |     |     |     |     |    |   |     |     |     |     |     |     |     |    |     |     |     |    |
| 196 | 729 | 4   | 128 | 289 | 25 | 8 | 81  | 512 | 128 | 512 | 4   | 25  | 512 | 36 | 289 | 324 | 4   |    |
|     |     |     |     |     |    |   |     |     |     |     |     |     |     |    |     |     |     |    |
| 8   | 81  | 343 | 4   | 144 | 8  | 4 | 343 | 4   | 289 | 4   | 216 | 196 | 36  | 4  | 729 | 81  | 512 | 32 |

|                                |                               |                                |                                |
|--------------------------------|-------------------------------|--------------------------------|--------------------------------|
| $14^2 = \square \rightarrow$ T | $2^9 = \square \rightarrow$ N | $7^3 = \square \rightarrow$ R  | $5^2 = \square \rightarrow$ O  |
| $18^2 = \square \rightarrow$ U | $6^2 = \square \rightarrow$ B | $2^5 = \square \rightarrow$ D  | $2^7 = \square \rightarrow$ G  |
| $2^2 = \square \rightarrow$ E  | $6^3 = \square \rightarrow$ F | $12^2 = \square \rightarrow$ S | $17^2 = \square \rightarrow$ L |
| $3^6 = \square \rightarrow$ H  | $3^4 = \square \rightarrow$ I | $2^3 = \square \rightarrow$ W  |                                |

Scratch space:

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

We split the clean power cells evenly among the five recovery bots.

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:**

$49 \div 7 = \boxed{\phantom{00}}$

$50 \div 10 = \boxed{\phantom{00}}$

$4 \div 2 = \boxed{\phantom{00}}$

$72 \div 8 = \boxed{\phantom{00}}$

$16 \div 2 = \boxed{\phantom{00}}$

$33 \div 3 = \boxed{\phantom{00}}$

$5 \div 5 = \boxed{\phantom{00}}$

$40 \div 4 = \boxed{\phantom{00}}$

$48 \div 8 = \boxed{\phantom{00}}$

$48 \div 4 = \boxed{\phantom{00}}$

$24 \div 6 = \boxed{\phantom{00}}$

**Step 2 - cross out the sentence with each answer:**

1. The villain boots a data cloner to steal the database, then deploys a robo-dog to guard the hallway.
2. The villain boots a data cloner to steal the database, then launches a micro-drone to record the room.
3. The villain runs a worm drive to copy the secret keys, then deploys a robo-dog to guard the hallway.
4. The villain uses a bypass key to unlock the vault, then whistles for a spider-bot to climb the walls.
5. The villain runs a worm drive to copy the secret keys, then activates a hover-bot to carry the loot.
6. The villain runs a worm drive to copy the secret keys, then launches a micro-drone to record the room.
7. The villain sends a signal jammer to mute the alarms, then activates a hover-bot to carry the loot.
8. The villain types with a code injector to rewrite files, then deploys a robo-dog to guard the hallway.
9. The villain boots a data cloner to steal the database, then calls a neon-cat to distract the night guard.
10. The villain types with a code injector to rewrite files, then whistles for a spider-bot to climb the walls.
11. The villain sends a signal jammer to mute the alarms, then whistles for a spider-bot to climb the walls.
12. The villain runs a worm drive to copy the secret keys, then whistles for a spider-bot to climb the walls.

# Answer Key

## The Code Room Glitch

### Culprit: Meg Hertz

worm drive · robo-dog · left handed · neon blue · magnet fields

Trail: Start 21 → Clue 1 15 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

### Clue 1 (Multiplication facts (1-12)): "THE GLITCH HACKER DOES NOT HAVE A SPIDER BOT"

$1 \times 11 = 11$  (T) ·  $3 \times 8 = 24$  (G) ·  $4 \times 8 = 32$  (I) ·  $1 \times 7 = 7$  (P) ·  $8 \times 7 = 56$  (E) ·  $7 \times 11 = 77$  (K) ·  $11 \times 12 = 132$  (V) ·  $5 \times 3 = 15$  (A) ·  $1 \times 2 = 2$  (B) ·  $11 \times 10 = 110$  (S) ·  $9 \times 8 = 72$  (L) ·  $7 \times 4 = 28$  (D) ·  $5 \times 5 = 25$  (R) ·  $4 \times 2 = 8$  (H) ·  $11 \times 5 = 55$  (N) ·  $5 \times 10 = 50$  (O) ·  $10 \times 7 = 70$  (C)

### Clue 2 (Pythagorean theorem): "THE SUSPECT TYPED WITH ONLY THEIR LEFT HAND"

legs 15 and 36, hypotenuse = 39 (T) · legs 16 and 30, hypotenuse = 34 (F) · legs 20 and 48, hypotenuse = 52 (U) · legs 12 and 35, hypotenuse = 37 (O) · legs 24 and 45, hypotenuse = 51 (C) · legs 21 and 72, hypotenuse = 75 (L) · legs 36 and 105, hypotenuse = 111 (D) · legs 20 and 21, hypotenuse = 29 (Y) · legs 10 and 24, hypotenuse = 26 (W) · legs 25 and 60, hypotenuse = 65 (R) · legs 24 and 32, hypotenuse = 40 (E) · legs 9 and 12, hypotenuse = 15 (I) · legs 60 and 63, hypotenuse = 87 (A) · legs 28 and 96, hypotenuse = 100 (H) · legs 27 and 120, hypotenuse = 123 (N) · legs 80 and 84, hypotenuse = 116 (S) · legs 18 and 80, hypotenuse = 82 (P)

### Clue 3 (Square roots): "THE HACKER RAN AWAY FROM STICKY MAGNET FIELDS"

$\sqrt{256} = 16$  (T) ·  $\sqrt{529} = 23$  (S) ·  $\sqrt{225} = 15$  (Y) ·  $\sqrt{81} = 9$  (M) ·  $\sqrt{64} = 8$  (W) ·  $\sqrt{4} = 2$  (E) ·  $\sqrt{441} = 21$  (G) ·  $\sqrt{324} = 18$  (C) ·  $\sqrt{361} = 19$  (O) ·  $\sqrt{16} = 4$  (H) ·  $\sqrt{576} = 24$  (D) ·  $\sqrt{625} = 25$  (F) ·  $\sqrt{169} = 13$  (A) ·  $\sqrt{196} = 14$  (K) ·  $\sqrt{25} = 5$  (I) ·  $\sqrt{36} = 6$  (N) ·  $\sqrt{49} = 7$  (R) ·  $\sqrt{121} = 11$  (L)

### Clue 4 (Exponents): "THE GLOWING NEON BLUE WIRES WERE LEFT BEHIND"

$14^2 = 196$  (T) ·  $2^9 = 512$  (N) ·  $7^3 = 343$  (R) ·  $5^2 = 25$  (O) ·  $18^2 = 324$  (U) ·  $6^2 = 36$  (B) ·  $2^5 = 32$  (D) ·  $2^7 = 128$  (G) ·  $2^2 = 4$  (E) ·  $6^3 = 216$  (F) ·  $12^2 = 144$  (S) ·  $17^2 = 289$  (L) ·  $3^6 = 729$  (H) ·  $3^4 = 81$  (I) ·  $2^3 = 8$  (W)

### Clue 5 (Division facts (1-12)): surviving statement is box 3 → Meg Hertz

$49 \div 7 = 7$  ·  $50 \div 10 = 5$  ·  $4 \div 2 = 2$  ·  $72 \div 8 = 9$  ·  $16 \div 2 = 8$  ·  $33 \div 3 = 11$  ·  $5 \div 5 = 1$  ·  $40 \div 4 = 10$  ·  $48 \div 8 = 6$  ·  $48 \div 4 = 12$  ·  $24 \div 6 = 4$