



The Great Arcade Glitch

Grade 4 math · Addition, Subtraction, Multiplication, Rounding, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

The Chief Programmer's master code has been stolen from the arcade machine! A mysterious Glitch Boss snuck past the firewall, scrambled the level data, and hid inside the high-score leaderboard. You must decode the clues, solve the math mysteries, and reboot the system before it is game over!

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 Boss is _____

Possible suspects

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

NAME	MAIN POWER	SPECIAL ITEM	CONTROLLER SETUP	SPRITE COLOR	GAME HAZARD
Samus	pixel shield	speed boots	uses left-hand controller	hot pink sprite	lava hazards
Bowser	pixel shield	speed boots	uses left-hand controller	bright green sprite	spike traps
Link	freeze ray	laser sword	uses left-hand controller	hot pink sprite	water levels
Sans	double jump	magnet glove	uses right-hand controller	bright green sprite	spike traps
Alex	fireball blast	speed boots	uses right-hand controller	neon blue sprite	water levels
Peach	double jump	magnet glove	uses right-hand controller	neon blue sprite	lava hazards
Luigi	teleport dash	laser sword	uses left-hand controller	hot pink sprite	water levels
Steve	fireball blast	speed boots	uses right-hand controller	neon blue sprite	lava hazards
Kirby	pixel shield	magnet glove	uses right-hand controller	hot pink sprite	water levels
Spyro	pixel shield	gravity belt	uses right-hand controller	hot pink sprite	lava hazards
Tails	double jump	laser sword	uses left-hand controller	neon blue sprite	water levels
Donkey Kong	teleport dash	shrink potion	uses left-hand controller	hot pink sprite	water levels
Tom Nook	freeze ray	speed boots	uses right-hand controller	neon blue sprite	lava hazards
Crash	freeze ray	gravity belt	uses left-hand controller	hot pink sprite	water levels
Wario	freeze ray	laser sword	uses left-hand controller	hot pink sprite	spike traps
Sonic	pixel shield	speed boots	uses right-hand controller	hot pink sprite	water levels
Pac-Man	double jump	laser sword	uses right-hand controller	bright green sprite	lava hazards
Yoshi	double jump	laser sword	uses left-hand controller	hot pink sprite	water levels
Ash Ketchum	freeze ray	shrink potion	uses left-hand controller	neon blue sprite	spike traps
Mario	fireball blast	shrink potion	uses right-hand controller	neon blue sprite	spike traps
Toad	fireball blast	magnet glove	uses left-hand controller	bright green sprite	lava hazards

CLUE 1 Addition

We need to count how many gold coins are scattered around the level lobby. Adding up the piles will unlock the first clue vault.

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

T						T												
7208	7104	3970	7035	4687	2244	7208	7796	7104	3049	3667	7306	7306	5732	3667	3970	7306		
		T											T				T	
8810	3667	7208	8631	3970	4024	7323	4024	7035	7323	4024	7326	2244	7208	5333	3049	3970	4687	7208

$3534 + 3674 = \square \rightarrow \text{[T]}$	$2325 + 1645 = \square \rightarrow \text{[E]}$	$2987 + 4336 = \square \rightarrow \text{[R]}$
$4149 + 2886 = \square \rightarrow \text{[G]}$	$2150 + 4954 = \square \rightarrow \text{[H]}$	$2899 + 4427 = \square \rightarrow \text{[V]}$
$2140 + 1884 = \square \rightarrow \text{[A]}$	$3147 + 1540 = \square \rightarrow \text{[L]}$	$3349 + 5461 = \square \rightarrow \text{[N]}$
$2609 + 4697 = \square \rightarrow \text{[S]}$	$5108 + 3523 = \square \rightarrow \text{[W]}$	$2645 + 5151 = \square \rightarrow \text{[C]}$
$1343 + 1706 = \square \rightarrow \text{[B]}$	$1209 + 2458 = \square \rightarrow \text{[O]}$	$1317 + 927 = \square \rightarrow \text{[I]}$
$3960 + 1772 = \square \rightarrow \text{[D]}$	$3217 + 2116 = \square \rightarrow \text{[Y]}$	

Scratch space:

CLUE 2 Subtraction

The game health bar is dropping fast. Calculate how many heart containers we lost to decode this corrupted data file.

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

T						T				
7472	2759	3657	4361	3657	3481	7472	2759	2144	3920	8743
			T							
6767	3008	3920	7472	6581	3008	4361	4361	3657	6581	4507
		T				T				
2144	6767	7472	1244	1779	2144	7472	3657	8743		

$10947 - 3475 = \square \rightarrow \boxed{T}$

$2779 - 1000 = \square \rightarrow \boxed{V}$

$6818 - 4059 = \square \rightarrow \boxed{H}$

$9130 - 4623 = \square \rightarrow \boxed{W}$

$9343 - 735 = \square \rightarrow \boxed{S}$

$7614 - 3957 = \square \rightarrow \boxed{E}$

$7912 - 1145 = \square \rightarrow \boxed{C}$

$5232 - 1312 = \square \rightarrow \boxed{N}$

$6256 - 3248 = \square \rightarrow \boxed{O}$

$6094 - 3950 = \square \rightarrow \boxed{A}$

$10461 - 1718 = \square \rightarrow \boxed{D}$

$5894 - 4650 = \square \rightarrow \boxed{I}$

$4756 - 1275 = \square \rightarrow \boxed{F}$

$11313 - 4732 = \square \rightarrow \boxed{R}$

$5149 - 788 = \square \rightarrow \boxed{L}$

Scratch space:

Multiplication facts (1-12)

A grid of mystery item blocks has appeared. Multiplying the rows and columns of blocks reveals the hidden code.

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

Row 1: 18, 40, 8, 22, 108, 120, 120, 84, 108, 110, 120, 50, 54, 18, 40, 3, 108, 110

Row 2: 18, 40, 8, 144, 84, 18, 8, 63, 120, 8, 22, 8, 120, 54

$6 \times 3 = \boxed{} \rightarrow \boxed{\text{T}}$

$5 \times 8 = \boxed{} \rightarrow \boxed{\text{H}}$

$7 \times 9 = \boxed{} \rightarrow \boxed{\text{R}}$

$12 \times 12 = \boxed{} \rightarrow \boxed{\mathbf{W}}$

$10 \times 12 = \boxed{} \rightarrow \boxed{\text{L}}$

$12 \times 7 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

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

$9 \times 6 = \square \rightarrow \boxed{\mathbf{S}}$

$$10 \times 5 = \boxed{} \rightarrow \boxed{0}$$

$1 \times 3 = \boxed{} \rightarrow \boxed{\text{P}}$

$1 \times 8 = \boxed{} \rightarrow \boxed{\mathbf{E}}$

$12 \times 9 = \boxed{} \rightarrow \boxed{1}$

$11 \times 2 = \boxed{} \rightarrow \boxed{\mathbf{V}}$

Scratch space:

CLUE 4 Rounding

The radar screen is glitching and can only show rounded numbers. Round the distance to the nearest ten to clear the signal.

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

T																	
700	5000	1700	9000	20	1700	500	1700	90	2300	9000	20	110	290	1700	3000	1700	170

								T					
200	500	2900	200	500	70	430	1100	200	700	20	5000	1700	9000

Round 732 to the nearest hundred → **T**

Round 114 to the nearest ten → **O**

Round 2,895 to the nearest hundred → **P**

Round 2,335 to the nearest hundred → **A**

Round 291 to the nearest ten → **V**

Round 9,249 to the nearest thousand → **S**

Round 19 to the nearest ten → **C**

Round 87 to the nearest ten → **W**

Round 1,081 to the nearest hundred → **L**

Round 74 to the nearest ten → **K**

Round 5,120 to the nearest thousand → **H**

Round 434 to the nearest ten → **G**

Round 166 to the nearest ten → **D**

Round 2,617 to the nearest thousand → **R**

Round 207 to the nearest hundred → **I**

Round 460 to the nearest hundred → **N**

Round 1,662 to the nearest hundred → **E**

Scratch space:

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

To bypass the final boss gate, we must share the remaining power potions equally among our team members.

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:

$14 \div 7 = \boxed{}$

$44 \div 4 = \boxed{}$

$11 \div 11 = \boxed{}$

$55 \div 11 = \boxed{}$

$48 \div 12 = \boxed{}$

$36 \div 6 = \boxed{}$

$7 \div 1 = \boxed{}$

$120 \div 12 = \boxed{}$

$27 \div 3 = \boxed{}$

$72 \div 6 = \boxed{}$

$88 \div 11 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain leaped over the castle defense wall, then sliced through the backup power cables.
2. The villain warped past the security firewall, then sliced through the backup power cables.
3. The villain froze the game screen solid, then sliced through the backup power cables.
4. The villain blocked the antivirus drone, then pulled the master cartridge from its slot.
5. The villain blocked the antivirus drone, then floated up to the top level of the grid.
6. The villain froze the game screen solid, then pulled the master cartridge from its slot.
7. The villain warped past the security firewall, then zipped away with the golden floppy disk.
8. The villain leaped over the castle defense wall, then zipped away with the golden floppy disk.
9. The villain burned down the save file directory, then zipped away with the golden floppy disk.
10. The villain warped past the security firewall, then pulled the master cartridge from its slot.
11. The villain warped past the security firewall, then shrank the main game code into a tiny byte.
12. The villain blocked the antivirus drone, then sliced through the backup power cables.

Answer Key

The Great Arcade Glitch

Culprit: Link

freeze ray · laser sword · uses left-hand controller · hot pink sprite · water levels

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE GLITCH BOSS DOES NOT WEAR A GRAVITY BELT"

$3534 + 3674 = 7208$ (T) · $2325 + 1645 = 3970$ (E) · $2987 + 4336 = 7323$ (R) · $4149 + 2886 = 7035$ (G) · $2150 + 4954 = 7104$ (H) · $2899 + 4427 = 7326$ (V) · $2140 + 1884 = 4024$ (A) · $3147 + 1540 = 4687$ (L) · $3349 + 5461 = 8810$ (N) · $2609 + 4697 = 7306$ (S) · $5108 + 3523 = 8631$ (W) · $2645 + 5151 = 7796$ (C) · $1343 + 1706 = 3049$ (B) · $1209 + 2458 = 3667$ (O) · $1317 + 927 = 2244$ (I) · $3960 + 1772 = 5732$ (D) · $3217 + 2116 = 5333$ (Y)

Clue 2 (Subtraction): "THE LEFT HAND CONTROLLER WAS ACTIVATED"

$10947 - 3475 = 7472$ (T) · $2779 - 1000 = 1779$ (V) · $6818 - 4059 = 2759$ (H) · $9130 - 4623 = 4507$ (W) · $9343 - 735 = 8608$ (S) · $7614 - 3957 = 3657$ (E) · $7912 - 1145 = 6767$ (C) · $5232 - 1312 = 3920$ (N) · $6256 - 3248 = 3008$ (O) · $6094 - 3950 = 2144$ (A) · $10461 - 1718 = 8743$ (D) · $5894 - 4650 = 1244$ (I) · $4756 - 1275 = 3481$ (F) · $11313 - 4732 = 6581$ (R) · $5149 - 788 = 4361$ (L)

Clue 3 (Multiplication facts (1-12)): "THE VILLAIN LOST HP IN THE WATER LEVELS"

$6 \times 3 = 18$ (T) · $5 \times 8 = 40$ (H) · $7 \times 9 = 63$ (R) · $12 \times 12 = 144$ (W) · $10 \times 12 = 120$ (L) · $12 \times 7 = 84$ (A) · $10 \times 11 = 110$ (N) · $9 \times 6 = 54$ (S) · $10 \times 5 = 50$ (O) · $1 \times 3 = 3$ (P) · $1 \times 8 = 8$ (E) · $12 \times 9 = 108$ (I) · $11 \times 2 = 22$ (V)

Clue 4 (Rounding): "THE SCENE WAS COVERED IN PINK GLITCHES"

Round 732 to the nearest hundred = 700 (T) · Round 114 to the nearest ten = 110 (O) · Round 2,895 to the nearest hundred = 2900 (P) · Round 2,335 to the nearest hundred = 2300 (A) · Round 291 to the nearest ten = 290 (V) · Round 9,249 to the nearest thousand = 9000 (S) · Round 19 to the nearest ten = 20 (C) · Round 87 to the nearest ten = 90 (W) · Round 1,081 to the nearest hundred = 1100 (L) · Round 74 to the nearest ten = 70 (K) · Round 5,120 to the nearest thousand = 5000 (H) · Round 434 to the nearest ten = 430 (G) · Round 166 to the nearest ten = 170 (D) · Round 2,617 to the nearest thousand = 3000 (R) · Round 207 to the nearest hundred = 200 (I) · Round 460 to the nearest hundred = 500 (N) · Round 1,662 to the nearest hundred = 1700 (E)

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

$14 \div 7 = 2$ · $44 \div 4 = 11$ · $11 \div 11 = 1$ · $55 \div 11 = 5$ · $48 \div 12 = 4$ · $36 \div 6 = 6$ · $7 \div 1 = 7$ · $120 \div 12 = 10$ · $27 \div 3 = 9$ · $72 \div 6 = 12$ · $88 \div 11 = 8$