



The Mystery of the Shattered Server

Grade 10 math · Pythagorean theorem, Multi-step word problems, Square roots, Exponents · Reading level grades 3-4

Detective: _____ Date: _____

Oh no! A sneaky villain snuck onto the server, dumped bucket loads of lava on the spawn castle, and ran away with the Golden Carrot! The Server Admin needs your help to track down the blocky 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 Griefer is _____

Possible suspects

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

NAME	WEAPON OF CHOICE	FAVORITE BLOCK	COMBAT STANCE	HELMET STYLE	MOB FEAR
CaptainSparklez	TNT Launcher	Slime Block	Left Handed	Gold Helmet	Scared of Phantoms
Ssundee	Diamond Sword	Slime Block	Right Handed	Diamond Helmet	Scared of Phantoms
Dream	Trident	Honey Block	Right Handed	Diamond Helmet	Scared of Endermen
Grian	TNT Launcher	Obsidian Block	Left Handed	Diamond Helmet	Scared of Endermen
Etho	Netherite Axe	Glowstone Block	Right Handed	Diamond Helmet	Scared of Endermen
VintageBeef	Trident	Glowstone Block	Right Handed	Diamond Helmet	Scared of Creepers
DanTDM	Netherite Axe	Honey Block	Right Handed	Diamond Helmet	Scared of Creepers
Agnes	Trident	Honey Block	Right Handed	Gold Helmet	Scared of Endermen
Mumbo	TNT Launcher	Honey Block	Right Handed	Iron Helmet	Scared of Creepers
Sapnap	Enchanted Bow	Redstone Lamp	Right Handed	Diamond Helmet	Scared of Phantoms
Alex	Netherite Axe	Redstone Lamp	Right Handed	Gold Helmet	Scared of Endermen
Notch	Enchanted Bow	Slime Block	Right Handed	Diamond Helmet	Scared of Endermen
Steve	Enchanted Bow	Obsidian Block	Right Handed	Diamond Helmet	Scared of Creepers
GamingWithJen	TNT Launcher	Honey Block	Right Handed	Iron Helmet	Scared of Endermen
Aphmau	TNT Launcher	Redstone Lamp	Right Handed	Gold Helmet	Scared of Phantoms
Preston	TNT Launcher	Glowstone Block	Right Handed	Diamond Helmet	Scared of Creepers
LadyAgnes	TNT Launcher	Glowstone Block	Right Handed	Gold Helmet	Scared of Phantoms
Iskall	Trident	Glowstone Block	Left Handed	Diamond Helmet	Scared of Phantoms
Stampy	Diamond Sword	Glowstone Block	Left Handed	Diamond Helmet	Scared of Creepers
Unspeakable	TNT Launcher	Redstone Lamp	Left Handed	Gold Helmet	Scared of Phantoms
LDShadowLady	Trident	Redstone Lamp	Right Handed	Diamond Helmet	Scared of Creepers

CLUE 1 Pythagorean theorem

We need to count the stolen emeralds. The village chest had several stacks of loot, but some were lost during the raid. Let us calculate the exact amount stolen to find our first clue.

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

T																T
39	10	34	52	100	50	34	26	34	100	41	68	34	29	58	68	39
75	29	34	100	34	41	29	39	68	58	34	123	51	30	17	29	

legs 15 and 36, hypotenuse = → **T**

legs 18 and 24, hypotenuse = → **M**

legs 27 and 120, hypotenuse = → **L**

legs 24 and 45, hypotenuse = → **A**

legs 20 and 21, hypotenuse = → **S**

legs 32 and 60, hypotenuse = → **O**

legs 20 and 48, hypotenuse = → **G**

legs 21 and 72, hypotenuse = → **U**

legs 10 and 24, hypotenuse = → **F**

legs 8 and 15, hypotenuse = → **P**

legs 9 and 40, hypotenuse = → **D**

legs 30 and 40, hypotenuse = → **I**

legs 6 and 8, hypotenuse = → **H**

legs 16 and 30, hypotenuse = → **E**

legs 28 and 96, hypotenuse = → **R**

legs 40 and 42, hypotenuse = → **N**

Scratch space:

CLUE 2

Multi-step word problems

The griever built a tall tower and jumped to a nearby hill. If we measure the height of the tower and the distance along the ground, we can find the diagonal leap size.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was R D E D .

47 37 68 27 26 27 24 58

There were 409 redstone repeaters in all. 33 redstone repeaters were set aside. The rest were shared equally among 8 the miners. How many redstone repeaters did each get?

Answer: → R

The cartographer collected 37 emeralds in the morning and 15 emeralds in the afternoon, then split them equally among 2 the miners. How many emeralds did each get?

Answer: → T

The cartographer collected 78 redstone repeaters in the morning and 70 redstone repeaters in the afternoon, then split them equally among 4 the miners. How many redstone repeaters did each get?

Answer: → I

There were 175 diamonds in all. 40 diamonds were set aside. The rest were shared equally among 5 the miners. How many diamonds did each get?

Answer: → H

There were 243 golden carrots in all. 3 the miners used 23 golden carrots each. The other 3 the miners shared the rest equally. How many golden carrots did each of the other the miners get?

Answer: → N

There were 100 slimeballs in all. 28 slimeballs were set aside. The rest were shared equally among 3 the miners. How many slimeballs did each get?

Answer: → A

The cartographer filled 4 boxes with 5 diamonds each, then found 48 more diamonds. How many diamonds are there in all?

Answer: → G

Scratch space:

CLUE 3 Square roots

The suspect locked their plans inside a perfectly square wheat farm. To bypass the redstone gate, we must find the exact length of one side of this square plot.

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

T																	
13	5	8	19	6	24	8	22	8	6	6	4	25	4	16	4	10	
16	5	8	25	4	20	6	8	8	17	8	6	5	24	15	15	8	23

$\text{sqrt}(169) = \square \rightarrow \text{T}$	$\text{sqrt}(225) = \square \rightarrow \text{S}$	$\text{sqrt}(361) = \square \rightarrow \text{G}$
$\text{sqrt}(576) = \square \rightarrow \text{I}$	$\text{sqrt}(400) = \square \rightarrow \text{C}$	$\text{sqrt}(16) = \square \rightarrow \text{A}$
$\text{sqrt}(289) = \square \rightarrow \text{P}$	$\text{sqrt}(625) = \square \rightarrow \text{N}$	$\text{sqrt}(25) = \square \rightarrow \text{H}$
$\text{sqrt}(256) = \square \rightarrow \text{W}$	$\text{sqrt}(484) = \square \rightarrow \text{F}$	$\text{sqrt}(529) = \square \rightarrow \text{D}$
$\text{sqrt}(36) = \square \rightarrow \text{R}$	$\text{sqrt}(64) = \square \rightarrow \text{E}$	$\text{sqrt}(100) = \square \rightarrow \text{Y}$

Scratch space:

CLUE 4 Exponents

The griever set up a mob spawner that doubles the number of zombies every minute. If we calculate how fast the horde grows over time, we can unlock the security code.

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

A							A										
169	8	196	128	81	400	144	169	484	225	25	400	512	81	196	484	81	289

	A										A				
32	169	729	400	9	225	121	121	81	400	25	81	169	9	8	441

$13^2 = \square \rightarrow$ A	$17^2 = \square \rightarrow$ T	$12^2 = \square \rightarrow$ I	$5^2 = \square \rightarrow$ N
$22^2 = \square \rightarrow$ M	$2^7 = \square \rightarrow$ U	$3^2 = \square \rightarrow$ R	$8^3 = \square \rightarrow$ H
$2^3 = \square \rightarrow$ B	$14^2 = \square \rightarrow$ L	$15^2 = \square \rightarrow$ O	$11^2 = \square \rightarrow$ P
$3^6 = \square \rightarrow$ S	$2^5 = \square \rightarrow$ W	$20^2 = \square \rightarrow$ D	$21^2 = \square \rightarrow$ Y
$3^4 = \square \rightarrow$ E			

Scratch space:

CLUE 5**Square roots - the last clue**

We found a secret base paved with square obsidian tiles. Calculating the side length of this square room will help us unlock the final chest.

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:

$\text{sqrt}(9) = \boxed{}$

$\text{sqrt}(81) = \boxed{}$

$\text{sqrt}(36) = \boxed{}$

$\text{sqrt}(4) = \boxed{}$

$\text{sqrt}(100) = \boxed{}$

$\text{sqrt}(16) = \boxed{}$

$\text{sqrt}(121) = \boxed{}$

$\text{sqrt}(64) = \boxed{}$

$\text{sqrt}(1) = \boxed{}$

$\text{sqrt}(25) = \boxed{}$

$\text{sqrt}(49) = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fires sparking tnt from a heavy launcher, then lights up the grieved area with redstone.
2. The villain fires sparking tnt from a heavy launcher, then sticky traps the doors with honey blocks.
3. The villain shoots glowing arrows from afar, then places solid obsidian to trap players.
4. The villain swings a diamond sword wildly, then sticky traps the doors with honey blocks.
5. The villain fires sparking tnt from a heavy launcher, then bounces away safely on a slime block.
6. The villain chops down support pillars with an axe, then sticky traps the doors with honey blocks.
7. The villain throws a loyal trident into the sky, then bounces away safely on a slime block.
8. The villain throws a loyal trident into the sky, then lights up the grieved area with redstone.
9. The villain throws a loyal trident into the sky, then hangs glowstone to mock the admins.
10. The villain swings a diamond sword wildly, then lights up the grieved area with redstone.
11. The villain throws a loyal trident into the sky, then sticky traps the doors with honey blocks.
12. The villain fires sparking tnt from a heavy launcher, then hangs glowstone to mock the admins.

Answer Key

The Mystery of the Shattered Server

Culprit: Preston

TNT Launcher · Glowstone Block · Right Handed · Diamond Helmet · Scared of Creepers

Trail: Start 21 → Clue 1 16 → Clue 2 12 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE GRIEFER DOES NOT USE REDSTONE LAMPS"

legs 15 and 36, hypotenuse = 39 (T) · legs 18 and 24, hypotenuse = 30 (M) · legs 27 and 120, hypotenuse = 123 (L) · legs 24 and 45, hypotenuse = 51 (A) · legs 20 and 21, hypotenuse = 29 (S) · legs 32 and 60, hypotenuse = 68 (O) · legs 20 and 48, hypotenuse = 52 (G) · legs 21 and 72, hypotenuse = 75 (U) · legs 10 and 24, hypotenuse = 26 (F) · legs 8 and 15, hypotenuse = 17 (P) · legs 9 and 40, hypotenuse = 41 (D) · legs 30 and 40, hypotenuse = 50 (I) · legs 6 and 8, hypotenuse = 10 (H) · legs 16 and 30, hypotenuse = 34 (E) · legs 28 and 96, hypotenuse = 100 (R) · legs 40 and 42, hypotenuse = 58 (N)

Clue 2 (Multi-step word problems): "RIGHT HANDED"

There were 409 redstone repeaters in all. 33 redstone repeaters were set aside. The rest were shared equally among 8 the miners. How many redstone repeaters did each get? = 47 (R) · The cartographer collected 37 emeralds in the morning and 15 emeralds in the afternoon, then split them equally among 2 the miners. How many emeralds did each get? = 26 (T) · The cartographer collected 78 redstone repeaters in the morning and 70 redstone repeaters in the afternoon, then split them equally among 4 the miners. How many redstone repeaters did each get? = 37 (I) · There were 175 diamonds in all. 40 diamonds were set aside. The rest were shared equally among 5 the miners. How many diamonds did each get? = 27 (H) · There were 243 golden carrots in all. 3 the miners used 23 golden carrots each. The other 3 the miners shared the rest equally. How many golden carrots did each of the other the miners get? = 58 (N) · There were 100 slimeballs in all. 28 slimeballs were set aside. The rest were shared equally among 3 the miners. How many slimeballs did each get? = 24 (A) · The cartographer filled 4 boxes with 5 diamonds each, then found 48 more diamonds. How many diamonds are there in all? = 68 (G)

Clue 3 (Square roots): "THE GRIEFER RAN AWAY WHEN A CREEPER HISSED"

$\sqrt{169} = 13$ (T) · $\sqrt{225} = 15$ (S) · $\sqrt{361} = 19$ (G) · $\sqrt{576} = 24$ (I) · $\sqrt{400} = 20$ (C) · $\sqrt{16} = 4$ (A) · $\sqrt{289} = 17$ (P) · $\sqrt{625} = 25$ (N) · $\sqrt{25} = 5$ (H) · $\sqrt{256} = 16$ (W) · $\sqrt{484} = 22$ (F) · $\sqrt{529} = 23$ (D) · $\sqrt{36} = 6$ (R) · $\sqrt{64} = 8$ (E) · $\sqrt{100} = 10$ (Y)

Clue 4 (Exponents): "A BLUE DIAMOND HELMET WAS DROPPED NEARBY"

$13^2 = 169$ (A) · $17^2 = 289$ (T) · $12^2 = 144$ (I) · $5^2 = 25$ (N) · $22^2 = 484$ (M) · $2^7 = 128$ (U) · $3^2 = 9$ (R) · $8^3 = 512$ (H) · $2^3 = 8$ (B) · $14^2 = 196$ (L) · $15^2 = 225$ (O) · $11^2 = 121$ (P) · $3^6 = 729$ (S) · $2^5 = 32$ (W) · $20^2 = 400$ (D) · $21^2 = 441$ (Y) · $3^4 = 81$ (E)

Clue 5 (Square roots): surviving statement is box 12 → Preston

$\sqrt{9} = 3$ · $\sqrt{81} = 9$ · $\sqrt{36} = 6$ · $\sqrt{4} = 2$ · $\sqrt{100} = 10$ · $\sqrt{16} = 4$ · $\sqrt{121} = 11$ · $\sqrt{64} = 8$ · $\sqrt{1} = 1$ · $\sqrt{25} = 5$ · $\sqrt{49} = 7$