The Case of the Glitched Kibble Vault

Grade 7 math · Place value, Addition, Subtraction, Multiplication, Two-step equations · Reading level grades 3-4

Detective: _____ **Date:** _____

Oh no! A sneaky robo-cat has cracked the main vault. All the tuna-flavored circuits are gone! The Head Kitty Keeper needs our help. We must track down the glitched bot before they eat all the treats.

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 glitchy meow-bot is _____

Possible suspects

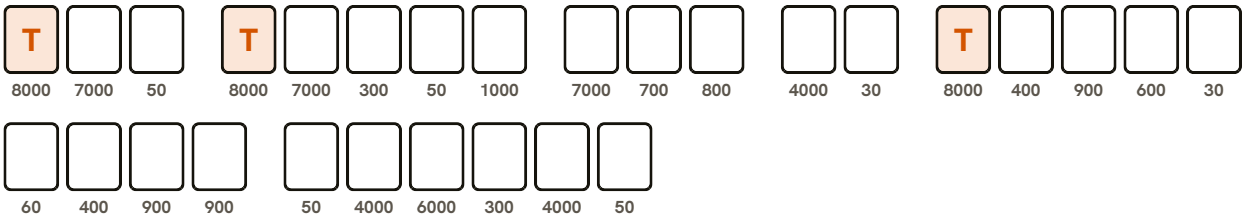
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	MAIN POWER	EXTRA POWER	DOMINANT PAW	FUR PAINT COLOR	ROBOT WEAKNESS
Cyber	Yarn Ball Launcher	Turbo Purr Engine	Right-pawed	Neon Orange	Loud Dog Bark
Clawdia	Rocket Paws	Hover Ears	Left-pawed	Copper Gold	Water Sprays
Ziggy	Yarn Ball Launcher	Magnet Tail	Right-pawed	Copper Gold	Water Sprays
Mittens	Yarn Ball Launcher	Whiskers Radar	Right-pawed	Neon Orange	Water Sprays
Copper	Sonic Meow	Fish-shaped Solar Panels	Left-pawed	Metallic Silver	Water Sprays
Circuit	Sonic Meow	Hover Ears	Right-pawed	Metallic Silver	Water Sprays
Bolt	Rocket Paws	Magnet Tail	Right-pawed	Metallic Silver	Water Sprays
Sprocket	Sonic Meow	Hover Ears	Left-pawed	Neon Orange	Water Sprays
Byte	Laser Pointer Eyes	Whiskers Radar	Right-pawed	Metallic Silver	Water Sprays
Flicker	Yarn Ball Launcher	Whiskers Radar	Right-pawed	Neon Orange	Loud Dog Bark
Bubbles	Catnip Smoke Screen	Turbo Purr Engine	Right-pawed	Metallic Silver	Water Sprays
Rusty	Rocket Paws	Magnet Tail	Left-pawed	Metallic Silver	Reboot Button
Pixel	Yarn Ball Launcher	Magnet Tail	Right-pawed	Metallic Silver	Loud Dog Bark
Boots	Laser Pointer Eyes	Hover Ears	Left-pawed	Metallic Silver	Reboot Button
Whiskers	Yarn Ball Launcher	Hover Ears	Left-pawed	Copper Gold	Reboot Button
Gizmo	Rocket Paws	Turbo Purr Engine	Left-pawed	Neon Orange	Loud Dog Bark
Simba	Yarn Ball Launcher	Hover Ears	Left-pawed	Neon Orange	Loud Dog Bark
Waffles	Yarn Ball Launcher	Whiskers Radar	Right-pawed	Metallic Silver	Reboot Button
Gears	Yarn Ball Launcher	Magnet Tail	Left-pawed	Copper Gold	Reboot Button
Meowbot	Yarn Ball Launcher	Magnet Tail	Right-pawed	Metallic Silver	Reboot Button
Gizette	Rocket Paws	Fish-shaped Solar Panels	Right-pawed	Metallic Silver	Water Sprays

CLUE 1 Place value

> The sanctuary radar screen is showing a big number. Let us look at the place value to read the secret code and open the first log.

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



What is the value of the 8 in 458,412? ☐ → **T**

What is the value of the 5 in 811,851? ☐ → **E**

What is the value of the 3 in 20,239? ☐ → **O**

What is the value of the 6 in 15,632? ☐ → **B**

What is the value of the 9 in 61,933? ☐ → **R**

What is the value of the 6 in 957,363? ☐ → **P**

What is the value of the 7 in 17,201? ☐ → **H**

What is the value of the 4 in 73,499? ☐ → **U**

What is the value of the 4 in 974,728? ☐ → **N**

What is the value of the 1 in 931,787? ☐ → **F**

What is the value of the 8 in 79,847? ☐ → **S**

What is the value of the 7 in 842,796? ☐ → **A**

What is the value of the 6 in 76,052? ☐ → **G**

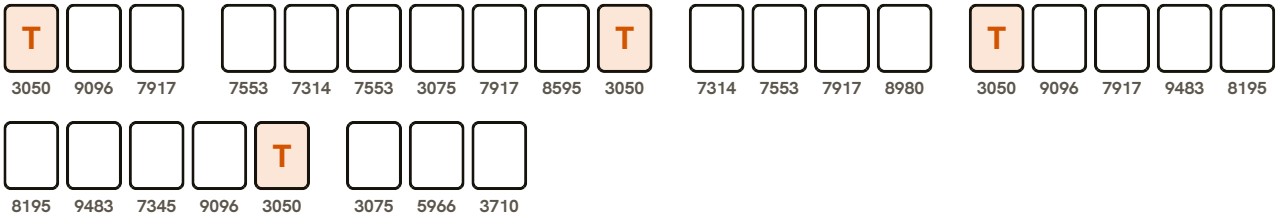
What is the value of the 3 in 664,389? ☐ → **I**

Scratch space:

CLUE 2 Addition

The helper bots found two piles of dropped scrap metal. We must add the piles together to see what they reveal.

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



2131 + 919 = ☐ → T	3907 + 3646 = ☐ → S	1804 + 1906 = ☐ → W
4683 + 4800 = ☐ → I	3831 + 2135 = ☐ → A	5494 + 2701 = ☐ → R
3292 + 4022 = ☐ → U	1713 + 1362 = ☐ → P	4800 + 3117 = ☐ → E
5475 + 3505 = ☐ → D	4433 + 4663 = ☐ → H	4326 + 3019 = ☐ → G
5037 + 3558 = ☐ → C		

Scratch space:

CLUE 3 Subtraction

> A box of toy mice was knocked over. Subtract the broken ones from the total to find out how many the thief took.

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

7071 - 2135 = ☐ → **T**

11725 - 3453 = ☐ → **W**

11276 - 3489 = ☐ → **A**

8115 - 1487 = ☐ → **P**

6290 - 1443 = ☐ → **S**

7956 - 4247 = ☐ → **F**

4825 - 2 = ☐ → **Y**

9029 - 4309 = ☐ → **O**

6491 - 793 = ☐ → **B**

5998 - 566 = ☐ → **R**

9780 - 4684 = ☐ → **D**

7538 - 2351 = ☐ → **E**

7428 - 2418 = ☐ → **H**

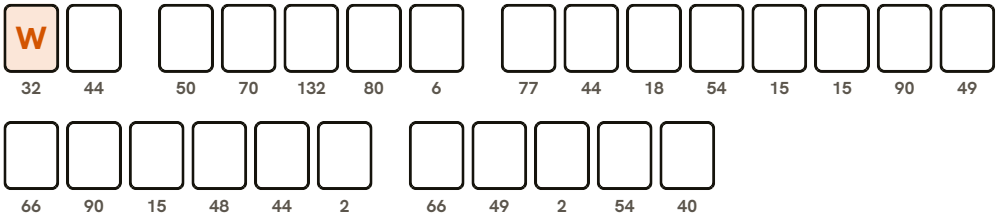
8070 - 4454 = ☐ → **I**

Scratch space:

CLUE 4 Multiplication facts (1-12)

The robo-cats are standing in neat rows. Multiply the rows to find the total and unlock the next file.

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



4 × 8 = ☐ → W	2 × 1 = ☐ → R	11 × 6 = ☐ → S
10 × 9 = ☐ → I	11 × 4 = ☐ → E	12 × 11 = ☐ → U
7 × 11 = ☐ → M	9 × 6 = ☐ → A	6 × 1 = ☐ → D
5 × 10 = ☐ → F	5 × 3 = ☐ → L	12 × 4 = ☐ → V
7 × 7 = ☐ → C	7 × 10 = ☐ → O	6 × 3 = ☐ → T
8 × 10 = ☐ → N	5 × 8 = ☐ → P	

Scratch space:

CLUE 5 Two-step equations - the last clue

> We need to balance the energy scales. If we double the battery power and add five we will solve the equation and get the final clue.

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:

2x + 7 = 17, x = ☐	6x + 7 = 19, x = ☐	5x + 7 = 37, x = ☐	2x + 10 = 30, x = ☐
4x + 12 = 56, x = ☐	4x + 7 = 43, x = ☐	2x + 5 = 21, x = ☐	3x + 12 = 48, x = ☐
6x + 10 = 34, x = ☐	4x + 5 = 9, x = ☐	3x + 3 = 12, x = ☐	

Step 2 - cross out the sentence with each answer:

1. The villain shot a giant yarn ball launcher, then grabbed the vault keys with a magnet tail.
2. The villain shined laser pointer eyes at the wall, then scanned the halls with whiskers radar.
3. The villain boosted away on rocket paws, then sped away with a turbo purr engine.
4. The villain boosted away on rocket paws, then floated up using hover ears.
5. The villain boosted away on rocket paws, then charged up using fish-shaped solar panels.
6. The villain blasted a loud sonic meow, then floated up using hover ears.
7. The villain boosted away on rocket paws, then grabbed the vault keys with a magnet tail.
8. The villain shined laser pointer eyes at the wall, then grabbed the vault keys with a magnet tail.
9. The villain blew a catnip smoke screen, then sped away with a turbo purr engine.
10. The villain shot a giant yarn ball launcher, then floated up using hover ears.
11. The villain blew a catnip smoke screen, then charged up using fish-shaped solar panels.
12. The villain shined laser pointer eyes at the wall, then sped away with a turbo purr engine.

TEACHER / PARENT

Answer Key

The Case of the Glitched Kibble Vault

Culprit: Bolt

Rocket Paws · Magnet Tail · Right-pawed · Metallic Silver · Water Sprays

Trail: Start 21 → Clue 1 18 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE THIEF HAS NO TURBO PURR ENGINE"

What is the value of the 8 in 458,412? = 8000 (T) · What is the value of the 5 in 811,851? = 50 (E) · What is the value of the 3 in 20,239? = 30 (O) · What is the value of the 6 in 15,632? = 600 (B) · What is the value of the 9 in 61,933? = 900 (R) · What is the value of the 6 in 957,363? = 60 (P) · What is the value of the 7 in 17,201? = 7000 (H) · What is the value of the 4 in 73,499? = 400 (U) · What is the value of the 4 in 974,728? = 4000 (N) · What is the value of the 1 in 931,787? = 1000 (F) · What is the value of the 8 in 79,847? = 800 (S) · What is the value of the 7 in 842,796? = 700 (A) · What is the value of the 6 in 76,052? = 6000 (G) · What is the value of the 3 in 664,389? = 300 (I)

Clue 2 (Addition): "THE SUSPECT USED THEIR RIGHT PAW"

2131 + 919 = 3050 (T) · 3907 + 3646 = 7553 (S) · 1804 + 1906 = 3710 (W) · 4683 + 4800 = 9483 (I) · 3831 + 2135 = 5966 (A) · 5494 + 2701 = 8195 (R) · 3292 + 4022 = 7314 (U) · 1713 + 1362 = 3075 (P) · 4800 + 3117 = 7917 (E) · 5475 + 3505 = 8980 (D) · 4433 + 4663 = 9096 (H) · 4326 + 3019 = 7345 (G) · 5037 + 3558 = 8595 (C)

Clue 3 (Subtraction): "THE ROBOT WAS AFRAID OF WATER SPRAYS"

7071 - 2135 = 4936 (T) · 11725 - 3453 = 8272 (W) · 11276 - 3489 = 7787 (A) · 8115 - 1487 = 6628 (P) · 6290 - 1443 = 4847 (S) · 7956 - 4247 = 3709 (F) · 4825 - 2 = 4823 (Y) · 9029 - 4309 = 4720 (O) · 6491 - 793 = 5698 (B) · 5998 - 566 = 5432 (R) · 9780 - 4684 = 5096 (D) · 7538 - 2351 = 5187 (E) · 7428 - 2418 = 5010 (H) · 8070 - 4454 = 3616 (I)

Clue 4 (Multiplication facts (1-12)): "WE FOUND METALLIC SILVER SCRAP"

4 × 8 = 32 (W) · 2 × 1 = 2 (R) · 11 × 6 = 66 (S) · 10 × 9 = 90 (I) · 11 × 4 = 44 (E) · 12 × 11 = 132 (U) · 7 × 11 = 77 (M) · 9 × 6 = 54 (A) · 6 × 1 = 6 (D) · 5 × 10 = 50 (F) · 5 × 3 = 15 (L) · 12 × 4 = 48 (V) · 7 × 7 = 49 (C) · 7 × 10 = 70 (O) · 6 × 3 = 18 (T) · 8 × 10 = 80 (N) · 5 × 8 = 40 (P)

Clue 5 (Two-step equations): surviving statement is box 7 → Bolt

2x + 7 = 17, x = 5 · 6x + 7 = 19, x = 2 · 5x + 7 = 37, x = 6 · 2x + 10 = 30, x = 10 · 4x + 12 = 56, x = 11 · 4x + 7 = 43, x = 9 · 2x + 5 = 21, x = 8 · 3x + 12 = 48, x = 12 · 6x + 10 = 34, x = 4 · 4x + 5 = 9, x = 1 · 3x + 3 = 12, x = 3