# The Toy Museum Mystery

Grade 6 math · Place value, Percentages, Exponents, Order of operations, Division · Reading level grades 1-2

**Detective:** _____ **Date:** _____

Oh no! A sneaky Robo-Thief took the Golden Bonsai Tree from the Tokyo Toy Museum. The thief left neon paint prints. We must find the thief!

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 Robo-Thief is** _____

## Possible suspects

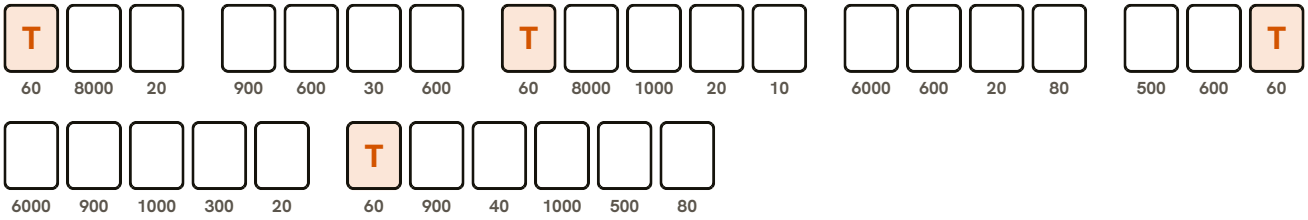
Cross off a row as each clue rules it out. The one left at the end is the culprit.

| NAME | ART POWER | SPORT POWER | PAINT MARK | WIG COLOR | SECRET WEAKNESS |
|---|---|---|---|---|---|
| **Kenji** | origami folding | kite flying | left-handed strike | blue wig | sweet tea |
| **Hana** | neon glowing | train driving | left-handed strike | blue wig | sweet tea |
| **Yua** | ramen cooking | train driving | left-handed strike | pink wig | loud bells |
| **Sakura** | neon glowing | kite flying | right-handed strike | green wig | splashed water |
| **Ren** | origami folding | ninja jumping | left-handed strike | green wig | sweet tea |
| **Naomi** | neon glowing | koi swimming | right-handed strike | pink wig | splashed water |
| **Hinata** | drum beating | sushi rolling | left-handed strike | pink wig | sweet tea |
| **Riku** | anime drawing | kite flying | right-handed strike | blue wig | sweet tea |
| **Miyu** | drum beating | koi swimming | left-handed strike | pink wig | sweet tea |
| **Satoshi** | origami folding | ninja jumping | left-handed strike | blue wig | sweet tea |
| **Shinji** | origami folding | ninja jumping | right-handed strike | blue wig | sweet tea |
| **Haru** | origami folding | koi swimming | left-handed strike | blue wig | splashed water |
| **Hiroshi** | drum beating | kite flying | left-handed strike | blue wig | splashed water |
| **Daiki** | neon glowing | ninja jumping | left-handed strike | blue wig | sweet tea |
| **Mari** | origami folding | sushi rolling | left-handed strike | blue wig | sweet tea |
| **Sora** | neon glowing | ninja jumping | right-handed strike | green wig | splashed water |
| **Aoi** | origami folding | ninja jumping | left-handed strike | blue wig | loud bells |
| **Mei** | anime drawing | train driving | left-handed strike | pink wig | splashed water |
| **Yuki** | drum beating | sushi rolling | left-handed strike | green wig | sweet tea |
| **Keiko** | anime drawing | sushi rolling | right-handed strike | green wig | sweet tea |
| **Takashi** | ramen cooking | sushi rolling | left-handed strike | blue wig | splashed water |

## CLUE 1 Place value

The robot locked the door. We need to find the right number place to open it. Look at this giant digital lock.

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




What is the value of the 6 in 799,563? ☐ → T

What is the value of the 4 in 98,341? ☐ → A

What is the value of the 6 in 44,643? ☐ → O

What is the value of the 9 in 263,926? ☐ → R

What is the value of the 8 in 99,786? ☐ → S

What is the value of the 1 in 961,759? ☐ → I

What is the value of the 1 in 539,410? ☐ → F

What is the value of the 3 in 584,329? ☐ → V

What is the value of the 5 in 369,514? ☐ → N

What is the value of the 3 in 581,238? ☐ → B

What is the value of the 6 in 36,354? ☐ → D

What is the value of the 2 in 704,323? ☐ → E

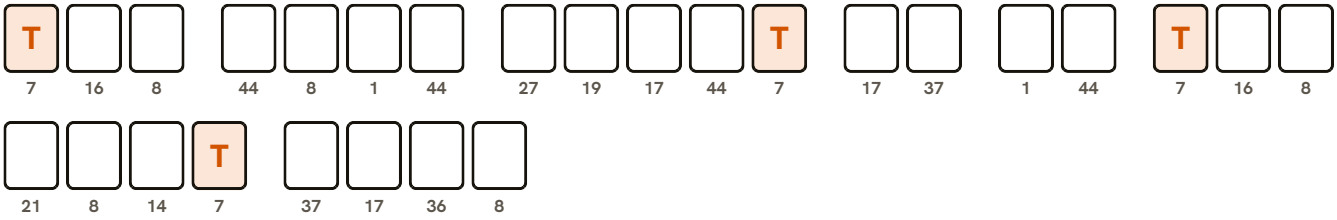
What is the value of the 8 in 518,956? ☐ → H

Scratch space:

## CLUE 2 Percentages

The robot left a map. A train line is partly finished. Let us find the percent of the track that is ready.

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



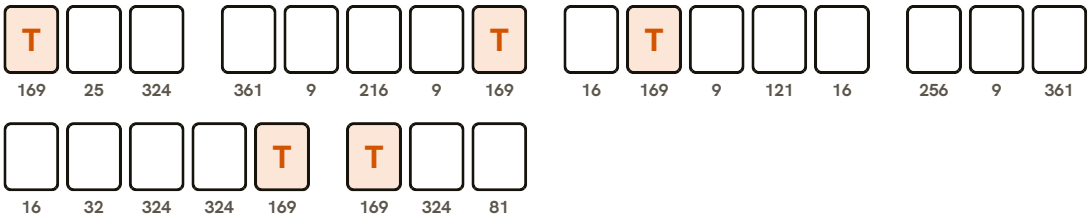

| | | |
|---|---|---|
| 5% of 140 = ☐ → T | 50% of 42 = ☐ → L | 25% of 56 = ☐ → F |
| 5% of 880 = ☐ → N | 50% of 54 = ☐ → P | 25% of 148 = ☐ → S |
| 20% of 95 = ☐ → A | 50% of 32 = ☐ → H | 50% of 2 = ☐ → O |
| 40% of 20 = ☐ → E | 10% of 170 = ☐ → I | 75% of 48 = ☐ → D |

Scratch space:

## CLUE 3 Exponents

> The robot made boxes of paper cranes. The boxes stack in square shapes. Let us count how many cranes are in the pile.

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



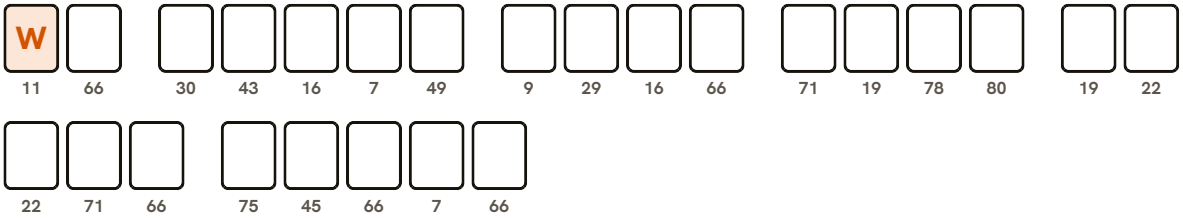

| | | | |
|---|---|---|---|
| 13^2 = ☐ → T | 3^2 = ☐ → O | 11^2 = ☐ → P | 6^3 = ☐ → B |
| 2^8 = ☐ → F | 4^2 = ☐ → S | 3^4 = ☐ → A | 2^5 = ☐ → W |
| 19^2 = ☐ → R | 5^2 = ☐ → H | 18^2 = ☐ → E | |

Scratch space:

## CLUE 4 Order of operations

To brew the perfect tea, we must follow the recipe steps in order. First multiply, then add, then find the answer.

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




9 × 3 - 16 = ☐ → W

7 × 7 - 6 = ☐ → O

5 × 8 - 10 = ☐ → F

64 + 4 × 4 = ☐ → R

42 + 6 × 6 = ☐ → I

10 × 5 - 5 = ☐ → C

2 + 5 × 4 = ☐ → T

41 + 5 × 5 = ☐ → E

39 + 5 × 2 = ☐ → D

41 + 6 × 5 = ☐ → H

11 + 3 × 6 = ☐ → L

8 × 12 - 21 = ☐ → S

4 + 3 × 5 = ☐ → A

8 + 4 × 2 = ☐ → U

3 + 2 × 2 = ☐ → N

5 + 2 × 2 = ☐ → B

Scratch space:

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

> We found a plate of sushi roll pieces. Let us share them equally among our team to solve the last puzzle.

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:**

| | | | | |
|---|---|---|---|---|
| 35 ÷ 7 = ☐ | 24 ÷ 12 = ☐ | 96 ÷ 8 = ☐ | 99 ÷ 9 = ☐ | 4 ÷ 4 = ☐ |
| 81 ÷ 9 = ☐ | 12 ÷ 3 = ☐ | 7 ÷ 1 = ☐ | 90 ÷ 9 = ☐ | 72 ÷ 12 = ☐ |
| 18 ÷ 6 = ☐ | | | | |

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

1. The villain stirs a hot bowl of ramen, then flies a red kite in the blue sky.
2. The villain folds a giant paper crane, then rolls a quick snack for later.
3. The villain stirs a hot bowl of ramen, then jumps into the cold koi pond.
4. The villain plays a beat on the big drum, then jumps into the cold koi pond.
5. The villain lights up the room with neon, then leaps high over the tall gate.
6. The villain lights up the room with neon, then jumps into the cold koi pond.
7. The villain plays a beat on the big drum, then leaps high over the tall gate.
8. The villain folds a giant paper crane, then leaps high over the tall gate.
9. The villain lights up the room with neon, then rolls a quick snack for later.
10. The villain lights up the room with neon, then zooms away on the fast train track.
11. The villain folds a giant paper crane, then jumps into the cold koi pond.
12. The villain folds a giant paper crane, then flies a red kite in the blue sky.

TEACHER / PARENT

# Answer Key

The Toy Museum Mystery

## Culprit: Satoshi

origami folding · ninja jumping · left-handed strike · blue wig · sweet tea

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 8 → Clue 4 4 → Clue 5 1

### Clue 1 (Place value): "THE ROBO THIEF DOES NOT DRIVE TRAINS"

What is the value of the 6 in 799,563? = 60 (T) · What is the value of the 4 in 98,341? = 40 (A) · What is the value of the 6 in 44,643? = 600 (O) · What is the value of the 9 in 263,926? = 900 (R) · What is the value of the 8 in 99,786? = 80 (S) · What is the value of the 1 in 961,759? = 1000 (I) · What is the value of the 1 in 539,410? = 10 (F) · What is the value of the 3 in 584,329? = 300 (V) · What is the value of the 5 in 369,514? = 500 (N) · What is the value of the 3 in 581,238? = 30 (B) · What is the value of the 6 in 36,354? = 6000 (D) · What is the value of the 2 in 704,323? = 20 (E) · What is the value of the 8 in 518,956? = 8000 (H)

### Clue 2 (Percentages): "THE NEON PAINT IS ON THE LEFT SIDE"

5% of 140 = 7 (T) · 50% of 42 = 21 (L) · 25% of 56 = 14 (F) · 5% of 880 = 44 (N) · 50% of 54 = 27 (P) · 25% of 148 = 37 (S) · 20% of 95 = 19 (A) · 50% of 32 = 16 (H) · 50% of 2 = 1 (O) · 40% of 20 = 8 (E) · 10% of 170 = 17 (I) · 75% of 48 = 36 (D)

### Clue 3 (Exponents): "THE ROBOT STOPS FOR SWEET TEA"

13^2 = 169 (T) · 3^2 = 9 (O) · 11^2 = 121 (P) · 6^3 = 216 (B) · 2^8 = 256 (F) · 4^2 = 16 (S) · 3^4 = 81 (A) · 2^5 = 32 (W) · 19^2 = 361 (R) · 5^2 = 25 (H) · 18^2 = 324 (E)

### Clue 4 (Order of operations): "WE FOUND BLUE HAIR AT THE SCENE"

9 × 3 - 16 = 11 (W) · 7 × 7 - 6 = 43 (O) · 5 × 8 - 10 = 30 (F) · 64 + 4 × 4 = 80 (R) · 42 + 6 × 6 = 78 (I) · 10 × 5 - 5 = 45 (C) · 2 + 5 × 4 = 22 (T) · 41 + 5 × 5 = 66 (E) · 39 + 5 × 2 = 49 (D) · 41 + 6 × 5 = 71 (H) · 11 + 3 × 6 = 29 (L) · 8 × 12 - 21 = 75 (S) · 4 + 3 × 5 = 19 (A) · 8 + 4 × 2 = 16 (U) · 3 + 2 × 2 = 7 (N) · 5 + 2 × 2 = 9 (B)

### Clue 5 (Division facts (1-12)): surviving statement is box 8 → Satoshi

35 ÷ 7 = 5 · 24 ÷ 12 = 2 · 96 ÷ 8 = 12 · 99 ÷ 9 = 11 · 4 ÷ 4 = 1 · 81 ÷ 9 = 9 · 12 ÷ 3 = 4 · 7 ÷ 1 = 7 · 90 ÷ 9 = 10 · 72 ÷ 12 = 6 · 18 ÷ 6 = 3