



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

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?

What is the value of the 4 in 98,341?

A diagram illustrating a transition. On the left is a white rounded rectangle with a thin black border. An arrow points from this box to another white rounded rectangle on the right, which has a thick black border and contains the letter 'A' in a bold, black, sans-serif font.

What is the value of the 6 in 44,643?

What is the value of the 9 in 263,926?

What is the value of the 8 in 99,786?

What is the value of the 1 in 961,759?

A diagram illustrating a transformation. On the left is a simple rectangular box. An arrow points from this box to a second box on the right. The second box is identical in shape but has a thick border and contains a single capital letter 'I' in the center.

What is the value of the 1 in 539,410?

☐ $\rightarrow$ **F**

What is the value of the 3 in 584,329?

? → **V**

What is the value of the 5 in 369,514?

A diagram consisting of a rectangular box on the left, followed by a right-pointing arrow, and then another rectangular box on the right containing the letter '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?

What is the value of the 8 in 518,956?

☐ → ☒ H

Scratch space:

CLUE 2

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.

7 16 8 44 8 1 44 27 19 17 44 7 17 37 1 44 7 16 8

21 8 14 7 37 17 36 8

5% of 140 = → **T**

50% of 42 = → **L**

25% of 56 = → **F**

5% of 880 = $\rightarrow$ **N**

50% of 54 = → **P**

25% of 148 = $\rightarrow$ **S**

20% of 95 = $\rightarrow$ **A**

50% of 32 = → **H**

50% of 2 = → **0**

40% of 20 = → **E**

10% of 170 = $\rightarrow$

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.

T								T		T								
169	25	324	361	9	216	9	169	16	169	9	121	16	256	9	361			
				T	T													
16	32	324	324	169	169	324	81											

$13^2 = \square \rightarrow$ T	$3^2 = \square \rightarrow$ O	$11^2 = \square \rightarrow$ P	$6^3 = \square \rightarrow$ B
$2^8 = \square \rightarrow$ F	$4^2 = \square \rightarrow$ S	$3^4 = \square \rightarrow$ A	$2^5 = \square \rightarrow$ W
$19^2 = \square \rightarrow$ R	$5^2 = \square \rightarrow$ H	$18^2 = \square \rightarrow$ 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.

W															
11	66	30	43	16	7	49	9	29	16	66	71	19	78	80	19 22
22	71	66	75	45	66	7	66								

$9 \times 3 - 16 = \square \rightarrow \boxed{W}$

$7 \times 7 - 6 = \square \rightarrow \boxed{O}$

$5 \times 8 - 10 = \square \rightarrow \boxed{F}$

$64 \div 4 \times 4 = \square \rightarrow \boxed{R}$

$42 \div 6 \times 6 = \square \rightarrow \boxed{I}$

$10 \times 5 - 5 = \square \rightarrow \boxed{C}$

$2 + 5 \times 4 = \square \rightarrow \boxed{T}$

$41 \div 5 \times 5 = \square \rightarrow \boxed{E}$

$39 \div 5 \times 2 = \square \rightarrow \boxed{D}$

$41 \div 6 \times 5 = \square \rightarrow \boxed{H}$

$11 \div 3 \times 6 = \square \rightarrow \boxed{L}$

$8 \times 12 - 21 = \square \rightarrow \boxed{S}$

$4 + 3 \times 5 = \square \rightarrow \boxed{A}$

$8 \div 4 \times 2 = \square \rightarrow \boxed{U}$

$3 + 2 \times 2 = \square \rightarrow \boxed{N}$

$5 + 2 \times 2 = \square \rightarrow \boxed{B}$

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:

$35 \div 7 = \boxed{}$

$24 \div 12 = \boxed{}$

$96 \div 8 = \boxed{}$

$99 \div 9 = \boxed{}$

$4 \div 4 = \boxed{}$

$81 \div 9 = \boxed{}$

$12 \div 3 = \boxed{}$

$7 \div 1 = \boxed{}$

$90 \div 9 = \boxed{}$

$72 \div 12 = \boxed{}$

$18 \div 6 = \boxed{}$

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.

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"

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

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

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