



# The Great Whisker City Heist

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 5-6

Detective: \_\_\_\_\_ Date: \_\_\_\_\_

A priceless golden tuna statue has been swiped from the Whisker City Museum! Detective, you must comb through the clues, interview the feline suspects, and find the sneaky catburglar before they make off with the prize.

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 catburglar is** \_\_\_\_\_

# Possible suspects

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

| NAME      | SUPER SKILL     | FAVORITE TOY   | SIGNATURE HABIT | FUR COLOR         | DISTRACTION        |
|-----------|-----------------|----------------|-----------------|-------------------|--------------------|
| Whiskers  | Silent Prowling | Laser Pointer  | Uses Right Paw  | Fluffy Calico Fur | Spray Bottle Mist  |
| Smoky     | Laser Chasing   | Crinkle Ball   | Uses Right Paw  | Orange Tabby Fur  | Rustling Paper Bag |
| Cleo      | Box Squeezing   | Squeaky Mouse  | Uses Right Paw  | Orange Tabby Fur  | Rustling Paper Bag |
| Morris    | Laser Chasing   | Laser Pointer  | Uses Left Paw   | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Toulouse  | Laser Chasing   | Crinkle Ball   | Uses Left Paw   | Fluffy Calico Fur | Spray Bottle Mist  |
| Duchess   | High Jumping    | Crinkle Ball   | Uses Right Paw  | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Berlioz   | Box Squeezing   | Feather Wand   | Uses Left Paw   | Sleek Tuxedo Fur  | Spray Bottle Mist  |
| Bella     | Box Squeezing   | Catnip Cushion | Uses Left Paw   | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Cheshire  | Laser Chasing   | Laser Pointer  | Uses Right Paw  | Sleek Tuxedo Fur  | Spray Bottle Mist  |
| Garfield  | Laser Chasing   | Squeaky Mouse  | Uses Left Paw   | Sleek Tuxedo Fur  | Spray Bottle Mist  |
| Tom       | Yarn Tangling   | Laser Pointer  | Uses Right Paw  | Orange Tabby Fur  | Smelly Tuna Scent  |
| Simba     | High Jumping    | Feather Wand   | Uses Left Paw   | Fluffy Calico Fur | Spray Bottle Mist  |
| Milo      | Laser Chasing   | Catnip Cushion | Uses Right Paw  | Fluffy Calico Fur | Smelly Tuna Scent  |
| Boots     | Box Squeezing   | Crinkle Ball   | Uses Right Paw  | Sleek Tuxedo Fur  | Rustling Paper Bag |
| Felix     | Yarn Tangling   | Squeaky Mouse  | Uses Right Paw  | Fluffy Calico Fur | Rustling Paper Bag |
| Sylvester | High Jumping    | Squeaky Mouse  | Uses Left Paw   | Orange Tabby Fur  | Smelly Tuna Scent  |
| Puss      | Yarn Tangling   | Feather Wand   | Uses Left Paw   | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Salem     | Yarn Tangling   | Crinkle Ball   | Uses Left Paw   | Sleek Tuxedo Fur  | Rustling Paper Bag |
| Figaro    | Silent Prowling | Feather Wand   | Uses Left Paw   | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Luna      | Silent Prowling | Catnip Cushion | Uses Right Paw  | Sleek Tuxedo Fur  | Smelly Tuna Scent  |
| Mittens   | Box Squeezing   | Crinkle Ball   | Uses Left Paw   | Sleek Tuxedo Fur  | Smelly Tuna Scent  |

## CLUE 1 Integers

The security system tracks the temperature changes in the museum basement. Compare these positive and negative temperature drops to find the first clue.

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

|   |    |    |   |    |    |    |    |    |   |    |    |    |   |   |    |   |
|---|----|----|---|----|----|----|----|----|---|----|----|----|---|---|----|---|
| T |    |    |   |    |    |    |    |    |   |    |    |    |   |   |    | T |
| 9 | 16 | 19 | 7 | 12 | 17 | 17 | 15 | 12 | 2 | 21 | 22 | 19 | 6 | 2 | 22 | 9 |

  

|   |   |    |    |    |    |   |    |    |    |    |    |   |   |    |    |  |
|---|---|----|----|----|----|---|----|----|----|----|----|---|---|----|----|--|
|   |   |    |    |    |    |   |    |    |    |    |    |   |   |    |    |  |
| 1 | 6 | 19 | 15 | 17 | 15 | 6 | 19 | 30 | 18 | 22 | 12 | 2 | 9 | 19 | 30 |  |

|                                             |                                             |                                             |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| $(-10) + 19 = \square \rightarrow \text{T}$ | $5 - (-11) = \square \rightarrow \text{H}$  | $(-2) + 21 = \square \rightarrow \text{E}$  |
| $(-1) + 19 = \square \rightarrow \text{P}$  | $19 - (-3) = \square \rightarrow \text{O}$  | $20 - (-10) = \square \rightarrow \text{R}$ |
| $(-14) + 35 = \square \rightarrow \text{D}$ | $8 - (-4) = \square \rightarrow \text{I}$   | $(-10) + 12 = \square \rightarrow \text{N}$ |
| $(-4) + 11 = \square \rightarrow \text{V}$  | $(-14) + 15 = \square \rightarrow \text{U}$ | $4 - (-11) = \square \rightarrow \text{A}$  |
| $(-11) + 28 = \square \rightarrow \text{L}$ | $4 - (-2) = \square \rightarrow \text{S}$   |                                             |

Scratch space:

**CLUE 2**

The museum gift shop tracks what percentage of toys were sold today. Calculate the correct percentages to unlock the security log.

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

Diagram illustrating memory cells and their values. The top row shows 18 cells, and the bottom row shows 10 cells. The values are as follows:

| Cell Index | Value | Label |
|------------|-------|-------|
| 1          | 17    | T     |
| 2          | 25    |       |
| 3          | 16    |       |
| 4          | 32    |       |
| 5          | 31    |       |
| 6          | 28    |       |
| 7          | 30    |       |
| 8          | 51    |       |
| 9          | 23    |       |
| 10         | 17    | T     |
| 11         | 40    |       |
| 12         | 53    |       |
| 13         | 23    |       |
| 14         | 30    |       |
| 15         | 16    |       |
| 16         | 8     |       |
| 17         | 53    |       |
| 18         | 23    |       |
| 19         | 17    | T     |
| 20         | 25    |       |
| 21         | 17    | T     |
| 22         | 25    |       |
| 23         | 16    |       |
| 24         | 28    |       |
| 25         | 16    |       |
| 26         | 21    |       |
| 27         | 17    | T     |
| 28         | 30    |       |
| 29         | 34    |       |
| 30         | 53    |       |

50% of 34 =  → **T**

10% of 230 =  →

10% of 340 =  → **A**

10% of 160 =  → **E**

50% of 106 =  → **W**

50% of 56 =  → **L**

20% of 40 =  → **D**

5% of 800 =  →

50% of 62 =  → **U**

20% of 150 =  → **P**

5% of 500 =  → **H**

25% of 128 =  → **C**

60% of 35 =  → **F**

10% of 510 =  → **R**

Scratch space:

## CLUE 3

## Order of operations

To crack the vault code, you must solve the curator's puzzle using the strict rules of operations in the exact correct order.

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

|    |    |    |    |    |    |     |     |    |    |     |     |    |    |    |    |    |    |    |    |   |  |
|----|----|----|----|----|----|-----|-----|----|----|-----|-----|----|----|----|----|----|----|----|----|---|--|
| T  |    |    | T  |    |    |     |     |    |    |     |     |    | T  |    |    |    |    |    |    | T |  |
| 56 | 91 | 34 | 56 | 91 | 19 | 34  | 45  | 12 | 89 | 106 | 106 | 11 | 56 | 96 | 34 | 49 | 19 | 49 | 56 |   |  |
| T  |    |    |    |    |    |     |     | T  |    |     |     |    |    |    |    |    |    |    |    |   |  |
| 56 | 91 | 34 | 49 | 90 | 34 | 119 | 119 | 9  | 56 | 88  | 106 | 89 |    |    |    |    |    |    |    |   |  |

$12 \times 7 - 28 = \square \rightarrow \boxed{\text{T}}$

$6 \times 4 - 13 = \square \rightarrow \boxed{\text{O}}$

$11 \times 3 - 14 = \square \rightarrow \boxed{\text{I}}$

$9 \times 12 - 17 = \square \rightarrow \boxed{\text{H}}$

$56 + 7 \times 9 = \square \rightarrow \boxed{\text{L}}$

$11 \times 5 - 21 = \square \rightarrow \boxed{\text{E}}$

$56 + 8 \times 5 = \square \rightarrow \boxed{\text{R}}$

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

$45 + 9 \times 5 = \square \rightarrow \boxed{\text{M}}$

$12 \times 9 - 2 = \square \rightarrow \boxed{\text{N}}$

$12 \times 8 - 8 = \square \rightarrow \boxed{\text{U}}$

$3 + 7 \times 6 = \square \rightarrow \boxed{\text{F}}$

$14 + 5 \times 7 = \square \rightarrow \boxed{\text{S}}$

$10 \times 2 - 11 = \square \rightarrow \boxed{\text{Y}}$

$11 \times 10 - 21 = \square \rightarrow \boxed{\text{A}}$

Scratch space:

## CLUE 4 Exponents

A colony of mice is multiplying fast in the grain bin. Use exponents to find how many mice are there and get the next clue.

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

|     |     |     |   |     |     |    |     |    |     |     |     |     |     |     |     |     |   |  |
|-----|-----|-----|---|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|---|--|
| S   |     |     |   |     |     |    |     |    |     |     |     |     |     |     |     |     |   |  |
| 125 | 4   | 8   | 8 | 128 | 9   | 4  | 225 | 81 | 128 | 225 | 49  | 169 | 324 | 400 | 256 | 121 | 8 |  |
|     |     |     |   |     |     |    |     |    |     |     | S   |     |     |     |     |     |   |  |
| 121 | 100 | 216 | 8 | 169 | 343 | 32 | 100 | 64 | 324 | 225 | 125 | 4   | 8   | 32  | 121 |     |   |  |

|                               |                                |                               |                                |
|-------------------------------|--------------------------------|-------------------------------|--------------------------------|
| $5^3 = \square \rightarrow$ S | $2^2 = \square \rightarrow$ L  | $3^2 = \square \rightarrow$ B | $20^2 = \square \rightarrow$ H |
| $4^4 = \square \rightarrow$ I | $11^2 = \square \rightarrow$ T | $6^3 = \square \rightarrow$ X | $13^2 = \square \rightarrow$ D |
| $2^3 = \square \rightarrow$ E | $18^2 = \square \rightarrow$ W | $2^5 = \square \rightarrow$ F | $3^4 = \square \rightarrow$ C  |
| $7^2 = \square \rightarrow$ N | $2^7 = \square \rightarrow$ K  | $7^3 = \square \rightarrow$ O | $15^2 = \square \rightarrow$ A |
| $8^2 = \square \rightarrow$ R | $10^2 = \square \rightarrow$ U |                               |                                |

Scratch space:

**CLUE 5****Two-step equations - the last clue**

A scale in the pantry has weights on both sides. Solve this two-step equation to balance the scale and reveal 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:**

$2x + 3 = 25, x = \boxed{\phantom{00}}$

$2x + 6 = 24, x = \boxed{\phantom{00}}$

$4x + 2 = 34, x = \boxed{\phantom{00}}$

$2x + 3 = 11, x = \boxed{\phantom{00}}$

$2x + 10 = 34, x = \boxed{\phantom{00}}$

$4x + 12 = 20, x = \boxed{\phantom{00}}$

$2x + 10 = 24, x = \boxed{\phantom{00}}$

$4x + 8 = 20, x = \boxed{\phantom{00}}$

$3x + 1 = 16, x = \boxed{\phantom{00}}$

$6x + 4 = 64, x = \boxed{\phantom{00}}$

$3x + 7 = 25, x = \boxed{\phantom{00}}$

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

1. The villain squeezed inside a tiny delivery box, then rolled a crinkle ball down the hallway.
2. The villain leaped over the high security fence, then shined a laser pointer to confuse the cameras.
3. The villain slipped through the narrow vents, then dropped a catnip cushion to soothe the watchdogs.
4. The villain squeezed inside a tiny delivery box, then shined a laser pointer to confuse the cameras.
5. The villain leaped over the high security fence, then swung a feather wand to bypass the motion sensors.
6. The villain chased a reflection across the gallery roof, then swung a feather wand to bypass the motion sensors.
7. The villain slipped through the narrow vents, then shined a laser pointer to confuse the cameras.
8. The villain tangled up the laser grid with yarn, then swung a feather wand to bypass the motion sensors.
9. The villain squeezed inside a tiny delivery box, then dropped a catnip cushion to soothe the watchdogs.
10. The villain chased a reflection across the gallery roof, then rolled a crinkle ball down the hallway.
11. The villain slipped through the narrow vents, then swung a feather wand to bypass the motion sensors.
12. The villain chased a reflection across the gallery roof, then tossed a squeaky mouse to distract the guard.

# Answer Key

## The Great Whisker City Heist

### Culprit: Mittens

Box Squeezing · Crinkle Ball · Uses Left Paw · Sleek Tuxedo Fur · Smelly Tuna Scent

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

#### Clue 1 (Integers): "THE VILLAIN DOES NOT USE A LASER POINTER"

$(-10) + 19 = 9$  (T) ·  $5 - (-11) = 16$  (H) ·  $(-2) + 21 = 19$  (E) ·  $(-1) + 19 = 18$  (P) ·  $19 - (-3) = 22$  (O) ·  $20 - (-10) = 30$  (R) ·  $(-14) + 35 = 21$  (D) ·  $8 - (-4) = 12$  (I) ·  $(-10) + 12 = 2$  (N) ·  $(-4) + 11 = 7$  (V) ·  $(-14) + 15 = 1$  (U) ·  $4 - (-11) = 15$  (A) ·  $(-11) + 28 = 17$  (L) ·  $4 - (-2) = 6$  (S)

#### Clue 2 (Percentages): "THE CULPRIT SWIPED WITH THE LEFT PAW"

50% of 34 = 17 (T) · 10% of 230 = 23 (I) · 10% of 340 = 34 (A) · 10% of 160 = 16 (E) · 50% of 106 = 53 (W) · 50% of 56 = 28 (L) · 20% of 40 = 8 (D) · 5% of 800 = 40 (S) · 50% of 62 = 31 (U) · 20% of 150 = 30 (P) · 5% of 500 = 25 (H) · 25% of 128 = 32 (C) · 60% of 35 = 21 (F) · 10% of 510 = 51 (R)

#### Clue 3 (Order of operations): "THE THIEF CANNOT RESIST THE SMELLY TUNA"

$12 \times 7 - 28 = 56$  (T) ·  $6 \times 4 - 13 = 11$  (O) ·  $11 \times 3 - 14 = 19$  (I) ·  $9 \times 12 - 17 = 91$  (H) ·  $56 + 7 \times 9 = 119$  (L) ·  $11 \times 5 - 21 = 34$  (E) ·  $56 + 8 \times 5 = 96$  (R) ·  $2 + 5 \times 2 = 12$  (C) ·  $45 + 9 \times 5 = 90$  (M) ·  $12 \times 9 - 2 = 106$  (N) ·  $12 \times 8 - 8 = 88$  (U) ·  $3 + 7 \times 6 = 45$  (F) ·  $14 + 5 \times 7 = 49$  (S) ·  $10 \times 2 - 11 = 9$  (Y) ·  $11 \times 10 - 21 = 89$  (A)

#### Clue 4 (Exponents): "SLEEK BLACK AND WHITE TUXEDO FUR WAS LEFT"

$5^3 = 125$  (S) ·  $2^2 = 4$  (L) ·  $3^2 = 9$  (B) ·  $20^2 = 400$  (H) ·  $4^4 = 256$  (I) ·  $11^2 = 121$  (T) ·  $6^3 = 216$  (X) ·  $13^2 = 169$  (D) ·  $2^3 = 8$  (E) ·  $18^2 = 324$  (W) ·  $2^5 = 32$  (F) ·  $3^4 = 81$  (C) ·  $7^2 = 49$  (N) ·  $2^7 = 128$  (K) ·  $7^3 = 343$  (O) ·  $15^2 = 225$  (A) ·  $8^2 = 64$  (R) ·  $10^2 = 100$  (U)

#### Clue 5 (Two-step equations): surviving statement is box 1 → Mittens

$2x + 3 = 25, x = 11$  ·  $2x + 6 = 24, x = 9$  ·  $4x + 2 = 34, x = 8$  ·  $2x + 3 = 11, x = 4$  ·  $2x + 10 = 34, x = 12$  ·  $4x + 12 = 20, x = 2$  ·  $2x + 10 = 24, x = 7$  ·  $4x + 8 = 20, x = 3$  ·  $3x + 1 = 16, x = 5$  ·  $6x + 4 = 64, x = 10$  ·  $3x + 7 = 25, x = 6$