



The Mystery of the Sunstone Tiara

Grade 4 math · Rounding, Addition, Subtraction, Multiplication, Division · Reading level grades 5-6

Detective: _____ Date: _____

The Grand Archduke's legendary Sunstone Tiara has vanished from the high tower! One of the princesses attending the Grand Ball is behind this. Use your detective skills to crack the code, solve the mystery, and save the kingdom!

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 Rogue Princess is _____

Possible suspects

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

NAME	MAGICAL ABILITY	ROYAL HEIRLOOM	SIGNATURE WAVE	ROYAL HAIRSTYLE	VULNERABILITY
Guinevere	glass weaving	silver slipper	right handed wave	braided crown	chocolate truffles
Odette	flora growth	enchanted mirror	right handed wave	braided crown	peppermint tea
Tiana	beast speech	enchanted mirror	left handed wave	loose curls	peppermint tea
Penelope	glass weaving	silver slipper	left handed wave	high ponytail	chocolate truffles
Anastasia	flora growth	silver slipper	left handed wave	loose curls	clock chimes
Genevieve	glass weaving	velvet cape	right handed wave	braided crown	chocolate truffles
Cinderella	starlight glow	golden tiara	right handed wave	braided crown	peppermint tea
Ariel	starlight glow	enchanted mirror	left handed wave	high ponytail	peppermint tea
Cordelia	flora growth	silk fan	right handed wave	braided crown	chocolate truffles
Elena	starlight glow	silver slipper	right handed wave	braided crown	chocolate truffles
Belle	starlight glow	silk fan	left handed wave	high ponytail	peppermint tea
Beatrice	glass weaving	enchanted mirror	right handed wave	high ponytail	peppermint tea
Charlotte	flora growth	silk fan	right handed wave	braided crown	peppermint tea
Seraphina	flora growth	silver slipper	left handed wave	braided crown	peppermint tea
Jasmine	glass weaving	silver slipper	right handed wave	high ponytail	chocolate truffles
Fiona	glass weaving	silver slipper	left handed wave	high ponytail	peppermint tea
Rapunzel	beast speech	silver slipper	right handed wave	loose curls	clock chimes
Giselle	glass weaving	enchanted mirror	right handed wave	braided crown	chocolate truffles
Rosalind	glass weaving	golden tiara	left handed wave	high ponytail	chocolate truffles
Snow White	frost touch	velvet cape	left handed wave	loose curls	clock chimes
Victoria	starlight glow	silver slipper	left handed wave	braided crown	chocolate truffles

CLUE 1 Rounding

The Royal Treasury's vault door requires an estimated security code. Let us look at the inventory log and round the gemstone count to the nearest ten.

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

T																	
300	900	2300	290	200	2300	230	200	2300	430	70	200	300	900	5000	3700	2300	5000
3700	2300	110	3700	2300	300	9000	5000	370	2300								

Round 331 to the nearest hundred → **T**

Round 9,463 to the nearest thousand → **C**

Round 190 to the nearest hundred → **O**

Round 4,995 to the nearest thousand → **A**

Round 865 to the nearest hundred → **H**

Round 69 to the nearest ten → **N**

Round 3,688 to the nearest hundred → **V**

Round 369 to the nearest ten → **P**

Round 2,340 to the nearest hundred → **E**

Round 288 to the nearest ten → **F**

Round 429 to the nearest ten → **S**

Round 232 to the nearest ten → **D**

Round 110 to the nearest ten → **L**

Scratch space:

CLUE 2

To find the path of the intruder, we must tally up the total number of footprints left in the royal garden beds.

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

Diagram illustrating the arrangement of boxes and numbers:

Top Row (15 boxes):

- Box 1: T
- Box 2: 9121
- Box 3: 5742
- Box 4: 5621
- Box 5: 8903
- Box 6: 5589
- Box 7: 2460
- Box 8: 2460
- Box 9: 9659
- Box 10: T
- Box 11: 5589
- Box 12: 5392
- Box 13: 8461
- Box 14: 9659
- Box 15: 8903

Bottom Row (15 boxes):

- Box 1: T
- Box 2: 9121
- Box 3: 5742
- Box 4: 5621
- Box 5: 5589
- Box 6: 6284
- Box 7: 6284
- Box 8: 5589
- Box 9: 3738
- Box 10: T
- Box 11: 5742
- Box 12: 9121
- Box 13: 5742
- Box 14: 9659
- Box 15: 5392

$$3216 + 5905 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$1598 + 862 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$3262 + 2480 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$2823 + 2569 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$2159 + 3430 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$1642 + 950 = \boxed{} \rightarrow \boxed{\text{D}}$$

$3151 + 2470 = \boxed{} \rightarrow \boxed{\text{E}}$

$$5016 + 4643 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$5693 + 2768 = \boxed{} \rightarrow \boxed{\text{W}}$$

$5703 + 3200 = \boxed{} \rightarrow \boxed{\text{V}}$

$$4320 + 1964 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$1877 + 1861 = \boxed{} \rightarrow \boxed{\text{G}}$$

Scratch space:

CLUE 3

Subtraction

Someone took a handful of pearls from the queen's necklace. We can find the thief's path by calculating how many pearls are missing.

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

T								T							T				T
6909	7621	6326	1698	4814	6326	4556	6909	4814	8757	8757	6326	3697	6909	4814	6326	7663	6909		
							T		T										
4597	7621	4814	4597	4814	2319	7663	6909	6326	6909	2617	7022	1698	1698	2319	6326	4556			

$$11180 - 4271 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$4551 - 1934 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$5671 - 3973 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$5651 - 1095 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$9236 - 1573 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$5686 - 872 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$10626 - 3604 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$11487 - 3866 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$8772 - 15 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$2705 - 386 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$7023 - 2426 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$8263 - 4566 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$9361 - 3035 = \boxed{} \rightarrow \boxed{\text{E}}$$

Scratch space:

Multiplication facts (1-12)

The palace ball planners set out rows of exquisite glass slippers. Finding the total slippers in this grid will reveal the next clue.

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

Diagram illustrating a sequence of numbers arranged in two rows of boxes. The top row contains 18 boxes, and the bottom row contains 12 boxes. The numbers below the boxes are as follows:

Row	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8	Box 9	Box 10	Box 11	Box 12	Box 13	Box 14	Box 15	Box 16	Box 17	Box 18	
Top Row	W																		
Bottom Row																			
Numbers	2	22	48	1	90	8	45	3	5	3	11	49	21	11	8	48	49	1	24

$$1 \times 2 = \boxed{} \rightarrow \boxed{\mathbf{W}}$$

$7 \times 7 = \boxed{} \rightarrow \boxed{\text{R}}$

$8 \times 9 = \boxed{} \rightarrow \boxed{\text{C}}$

$8 \times 6 = \boxed{} \rightarrow \boxed{\text{F}}$

$1 \times 3 = \boxed{} \rightarrow \boxed{\text{A}}$

$1 \times 5 = \boxed{} \rightarrow \boxed{\text{H}}$

$11 \times 1 = \boxed{} \rightarrow \boxed{1}$

$$1 \times 8 = \boxed{} \rightarrow \boxed{\text{N}}$$

$8 \times 4 = \boxed{} \rightarrow \boxed{\mathbf{B}}$

$$9 \times 10 = \boxed{} \rightarrow \boxed{\text{U}}$$

$3 \times 8 = \boxed{} \rightarrow \boxed{\text{M}}$

$$1 \times 1 = \boxed{} \rightarrow \boxed{0}$$

$$3 \times 7 = \boxed{} \rightarrow \boxed{\text{P}}$$

$11 \times 2 = \square \rightarrow \boxed{\text{E}}$

$9 \times 5 = \boxed{} \rightarrow \boxed{\text{D}}$

Scratch space:

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

The head chef needs to distribute the royal pastries evenly among the visiting princesses to unlock the final secret.

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:

$77 \div 7 = \boxed{}$

$72 \div 12 = \boxed{}$

$11 \div 11 = \boxed{}$

$21 \div 3 = \boxed{}$

$132 \div 11 = \boxed{}$

$6 \div 2 = \boxed{}$

$80 \div 10 = \boxed{}$

$44 \div 11 = \boxed{}$

$2 \div 1 = \boxed{}$

$15 \div 3 = \boxed{}$

$60 \div 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain covered the Grand Ballroom in vibrant vines, then hid behind an elegant silk fan.
2. The villain froze the grand banquet hall in sparkling ice, then dropped a glowing golden tiara.
3. The villain lit up the castle towers with dazzling starlight, then dropped a glowing golden tiara.
4. The villain covered the Grand Ballroom in vibrant vines, then dropped a glowing golden tiara.
5. The villain commanded the palace bluebirds to carry the treasure, then swished a heavy velvet cape.
6. The villain spun the royal glass windows into a thick barrier, then shattered a sparkling silver slipper.
7. The villain lit up the castle towers with dazzling starlight, then swished a heavy velvet cape.
8. The villain spun the royal glass windows into a thick barrier, then hid behind an elegant silk fan.
9. The villain spun the royal glass windows into a thick barrier, then consulted a whispering enchanted mirror.
10. The villain covered the Grand Ballroom in vibrant vines, then consulted a whispering enchanted mirror.
11. The villain lit up the castle towers with dazzling starlight, then shattered a sparkling silver slipper.
12. The villain lit up the castle towers with dazzling starlight, then hid behind an elegant silk fan.

Answer Key

The Mystery of the Sunstone Tiara

Culprit: Giselle

glass weaving · enchanted mirror · right handed wave · braided crown · chocolate truffles

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE FOE DOES NOT HAVE A VELVET CAPE"

Round 331 to the nearest hundred = 300 (T) · Round 9,463 to the nearest thousand = 9000 (C) · Round 190 to the nearest hundred = 200 (O) · Round 4,995 to the nearest thousand = 5000 (A) · Round 865 to the nearest hundred = 900 (H) · Round 69 to the nearest ten = 70 (N) · Round 3,688 to the nearest hundred = 3700 (V) · Round 369 to the nearest ten = 370 (P) · Round 2,340 to the nearest hundred = 2300 (E) · Round 288 to the nearest ten = 290 (F) · Round 429 to the nearest ten = 430 (S) · Round 232 to the nearest ten = 230 (D) · Round 110 to the nearest ten = 110 (L)

Clue 2 (Addition): "THE VILLAIN WAVED WITH THEIR RIGHT HAND"

$3216 + 5905 = 9121$ (T) · $1598 + 862 = 2460$ (L) · $3262 + 2480 = 5742$ (H) · $2823 + 2569 = 5392$ (N) · $2159 + 3430 = 5589$ (I) · $1642 + 950 = 2592$ (D) · $3151 + 2470 = 5621$ (E) · $5016 + 4643 = 9659$ (A) · $5693 + 2768 = 8461$ (W) · $5703 + 3200 = 8903$ (V) · $4320 + 1964 = 6284$ (R) · $1877 + 1861 = 3738$ (G)

Clue 3 (Subtraction): "THE FOE STOPPED TO EAT CHOCOLATE TRUFFLES"

$11180 - 4271 = 6909$ (T) · $4551 - 1934 = 2617$ (R) · $5671 - 3973 = 1698$ (F) · $5651 - 1095 = 4556$ (S) · $9236 - 1573 = 7663$ (A) · $5686 - 872 = 4814$ (O) · $10626 - 3604 = 7022$ (U) · $11487 - 3866 = 7621$ (H) · $8772 - 15 = 8757$ (P) · $2705 - 386 = 2319$ (L) · $7023 - 2426 = 4597$ (C) · $8263 - 4566 = 3697$ (D) · $9361 - 3035 = 6326$ (E)

Clue 4 (Multiplication facts (1-12)): "WE FOUND A HAIRPIN FROM A BRAIDED CROWN"

$1 \times 2 = 2$ (W) · $7 \times 7 = 49$ (R) · $8 \times 9 = 72$ (C) · $8 \times 6 = 48$ (F) · $1 \times 3 = 3$ (A) · $1 \times 5 = 5$ (H) · $11 \times 1 = 11$ (I) · $1 \times 8 = 8$ (N) · $8 \times 4 = 32$ (B) · $9 \times 10 = 90$ (U) · $3 \times 8 = 24$ (M) · $1 \times 1 = 1$ (O) · $3 \times 7 = 21$ (P) · $11 \times 2 = 22$ (E) · $9 \times 5 = 45$ (D)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Giselle

$77 \div 7 = 11$ · $72 \div 12 = 6$ · $11 \div 11 = 1$ · $21 \div 3 = 7$ · $132 \div 11 = 12$ · $6 \div 2 = 3$ · $80 \div 10 = 8$ · $44 \div 11 = 4$ · $2 \div 1 = 2$ · $15 \div 3 = 5$ · $60 \div 6 = 10$