



The Great Trophy Swap

Grade 4 math · Multiplication, Rounding, Addition, Subtraction, Division · Reading level grades 3-4

Detective: _____ Date: _____

The biggest event of the year is ruined! Just before the final floor routines, the glittering championship trophy was replaced with a heavy plastic replica. The culprit left chalky footprints leading straight to the locker rooms. We must act fast to crack the codes, analyze the evidence, and rescue the real trophy before the closing ceremony!

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 Gold Medal Snatcher is _____

Possible suspects

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

NAME	GYMNASTICS EVENT	SIGNATURE GEAR	GRIP TAPE HAND	HAIR STYLE	FOIL
Dominique	floor tumble	wrist guards	wears grip tape on left hand	space buns	squeaky springboards
Mary Lou	beam balance	grip bag	wears grip tape on right hand	braided bun	shiny gold medals
Carly	trampoline bounce	glitter hairspray	wears grip tape on right hand	braided bun	shiny gold medals
Morgan	bars release	wrist guards	wears grip tape on left hand	space buns	smell of cherry balm
Kara	beam balance	sticky chalk belt	wears grip tape on right hand	braided bun	smell of cherry balm
Konnor	floor tumble	grip bag	wears grip tape on left hand	high ponytail	shiny gold medals
Jade	floor tumble	wrist guards	wears grip tape on left hand	high ponytail	shiny gold medals
Chellsie	floor tumble	wrist guards	wears grip tape on left hand	space buns	shiny gold medals
Sunisa	vault launch	wrist guards	wears grip tape on left hand	space buns	shiny gold medals
Shawn	beam balance	glitter hairspray	wears grip tape on left hand	space buns	shiny gold medals
Gabby	bars release	grip bag	wears grip tape on left hand	high ponytail	smell of cherry balm
Shannon	vault launch	grip bag	wears grip tape on left hand	high ponytail	squeaky springboards
Grace	vault launch	sparkly scrunchie	wears grip tape on left hand	high ponytail	smell of cherry balm
Kerri	floor tumble	sparkly scrunchie	wears grip tape on left hand	space buns	smell of cherry balm
Nastia	trampoline bounce	grip bag	wears grip tape on left hand	high ponytail	squeaky springboards
Laurie	beam balance	grip bag	wears grip tape on left hand	space buns	shiny gold medals
Kayla	vault launch	grip bag	wears grip tape on left hand	space buns	shiny gold medals
Jordan	beam balance	grip bag	wears grip tape on right hand	space buns	shiny gold medals
Shilese	trampoline bounce	wrist guards	wears grip tape on left hand	braided bun	squeaky springboards
Aly	bars release	sparkly scrunchie	wears grip tape on left hand	braided bun	shiny gold medals
Simone	floor tumble	sticky chalk belt	wears grip tape on left hand	braided bun	shiny gold medals

CLUE 1
Multiplication facts (1-12)

We find a gym bag with rows of identical grip rollers. If we multiply the rows by the rollers in each row, we can open the bag's lock and find a clue!

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

T						T											T	
66	64	70	54	96	22	66	99	64	70	5	90	18	70	54	96	18	66	
						T	T											
81	54	70	4	1	56	66	66	70	5	64	22	56	5	54	21	5	22	144

$6 \times 11 = \square \rightarrow \boxed{\text{T}}$

$12 \times 12 = \square \rightarrow \boxed{\text{Y}}$

$10 \times 7 = \square \rightarrow \boxed{\text{E}}$

$10 \times 9 = \square \rightarrow \boxed{\text{D}}$

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

$1 \times 5 = \square \rightarrow \boxed{\text{R}}$

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

$8 \times 8 = \square \rightarrow \boxed{\text{H}}$

$1 \times 1 = \square \rightarrow \boxed{\text{L}}$

$2 \times 9 = \square \rightarrow \boxed{\text{O}}$

$8 \times 7 = \square \rightarrow \boxed{\text{I}}$

$9 \times 11 = \square \rightarrow \boxed{\text{C}}$

$1 \times 4 = \square \rightarrow \boxed{\text{G}}$

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

$6 \times 9 = \square \rightarrow \boxed{\text{S}}$

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

Scratch space:

CLUE 2 Rounding

The scoreboard screen is flickering and only displays the team score rounded to the nearest ten. We need to estimate the real score to unlock the security camera!

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

L																	
230	500	3000	430	700	30	110	2000	1100	4300	50	1700	430	30	1700	500		

												L	
9000	30	4300	300	500	2000	430	700	500	370	30	20	230	430

Round 227 to the nearest ten → **L**

Round 431 to the nearest ten → **T**

Round 459 to the nearest hundred → **E**

Round 347 to the nearest hundred → **K**

Round 8,789 to the nearest thousand → **M**

Round 4,284 to the nearest hundred → **R**

Round 1,661 to the nearest thousand → **D**

Round 48 to the nearest ten → **I**

Round 672 to the nearest hundred → **H**

Round 1,061 to the nearest hundred → **G**

Round 1,738 to the nearest hundred → **P**

Round 19 to the nearest ten → **U**

Round 31 to the nearest ten → **A**

Round 111 to the nearest ten → **N**

Round 2,816 to the nearest thousand → **F**

Round 366 to the nearest ten → **V**

Scratch space:

CLUE 3 Addition

Let us count the colorful leotards packed in the team crates. Adding the counts from both bins will give us the total and reveal a dropped note!

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

T						T				T				T				
2841	6711	4369	6900	5089	3465	2841	9896	4474	9730	2841	7542	5087	6455	2841	4369	9896	7836	6900
9730	6711	4474	8019	6900	5089	3465	6277	9896	9775	4369	9896	5087	6277	9730				

$1560 + 1281 = \square \rightarrow \text{T}$	$3460 + 6436 = \square \rightarrow \text{D}$	$1523 + 1942 = \square \rightarrow \text{O}$
$4862 + 3157 = \square \rightarrow \text{N}$	$3878 + 5897 = \square \rightarrow \text{M}$	$2633 + 5203 = \square \rightarrow \text{B}$
$2046 + 4231 = \square \rightarrow \text{L}$	$3935 + 2965 = \square \rightarrow \text{Y}$	$3016 + 1353 = \square \rightarrow \text{E}$
$3139 + 1948 = \square \rightarrow \text{A}$	$5217 + 2325 = \square \rightarrow \text{R}$	$2011 + 3078 = \square \rightarrow \text{G}$
$3958 + 5772 = \square \rightarrow \text{S}$	$4316 + 2139 = \square \rightarrow \text{C}$	$1377 + 3097 = \square \rightarrow \text{I}$
$2756 + 3955 = \square \rightarrow \text{H}$		

Scratch space:

CLUE 4 Subtraction

The equipment manager noticed some heavy gym mats are missing from the stack. Subtracting the current mats from yesterday's total helps us track the thief's escape!

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

G																			
1344	4902	8466	7894	7894	4964	4691	2651	4691	5059	5743	3276	8122	6907	1788	4964	1742	6726	2368	3276

1723	6907	3276	5059	2368	7894	2837	4964	5743	6907	7894

$1525 - 181 = \square \rightarrow \boxed{\text{G}}$

$3891 - 2103 = \square \rightarrow \boxed{\text{C}}$

$9969 - 3243 = \square \rightarrow \boxed{\text{U}}$

$10391 - 3484 = \square \rightarrow \boxed{\text{A}}$

$10992 - 2526 = \square \rightarrow \boxed{\text{I}}$

$4025 - 2302 = \square \rightarrow \boxed{\text{W}}$

$8159 - 2416 = \square \rightarrow \boxed{\text{M}}$

$9611 - 4920 = \square \rightarrow \boxed{\text{R}}$

$6100 - 3732 = \square \rightarrow \boxed{\text{N}}$

$5978 - 3141 = \square \rightarrow \boxed{\text{H}}$

$5713 - 2437 = \square \rightarrow \boxed{\text{S}}$

$5806 - 747 = \square \rightarrow \boxed{\text{O}}$

$3049 - 398 = \square \rightarrow \boxed{\text{F}}$

$11964 - 3842 = \square \rightarrow \boxed{\text{P}}$

$6611 - 1709 = \square \rightarrow \boxed{\text{L}}$

$10296 - 2402 = \square \rightarrow \boxed{\text{T}}$

$6360 - 4618 = \square \rightarrow \boxed{\text{B}}$

$7268 - 2304 = \square \rightarrow \boxed{\text{E}}$

Scratch space:

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

We have a pile of shiny hair clips to distribute equally among the gymnastics teams. Splitting them into equal groups tells us which lockers to search!

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:

$36 \div 9 = \boxed{}$

$24 \div 3 = \boxed{}$

$66 \div 6 = \boxed{}$

$27 \div 3 = \boxed{}$

$3 \div 1 = \boxed{}$

$49 \div 7 = \boxed{}$

$6 \div 6 = \boxed{}$

$25 \div 5 = \boxed{}$

$132 \div 11 = \boxed{}$

$6 \div 3 = \boxed{}$

$42 \div 7 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain swung high off the uneven bars, then zipped up a pink grip bag.
2. The villain bounced high on the trampoline, then sprayed a cloud of glitter hairspray.
3. The villain swung high off the uneven bars, then spilled a sticky chalk belt.
4. The villain leaped off the vaulting horse, then adjusted a pair of thick wrist guards.
5. The villain balanced perfectly on the high beam, then spilled a sticky chalk belt.
6. The villain balanced perfectly on the high beam, then sprayed a cloud of glitter hairspray.
7. The villain swung high off the uneven bars, then sprayed a cloud of glitter hairspray.
8. The villain leaped off the vaulting horse, then zipped up a pink grip bag.
9. The villain swung high off the uneven bars, then dropped a sparkly scrunchie behind the bench.
10. The villain balanced perfectly on the high beam, then zipped up a pink grip bag.
11. The villain flipped across the blue floor mat, then adjusted a pair of thick wrist guards.
12. The villain leaped off the vaulting horse, then dropped a sparkly scrunchie behind the bench.

Answer Key

The Great Trophy Swap

Culprit: Laurie

beam balance · grip bag · wears grip tape on left hand · space buns · shiny gold medals

Trail: Start 21 → Clue 1 19 → Clue 2 16 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE SNATCHER DOES NOT USE GLITTER HAIRSPRAY"

$6 \times 11 = 66$ (T) · $12 \times 12 = 144$ (Y) · $10 \times 7 = 70$ (E) · $10 \times 9 = 90$ (D) · $3 \times 7 = 21$ (P) · $1 \times 5 = 5$ (R) · $9 \times 9 = 81$ (U) · $8 \times 8 = 64$ (H) · $1 \times 1 = 1$ (L) · $2 \times 9 = 18$ (O) · $8 \times 7 = 56$ (I) · $9 \times 11 = 99$ (C) · $1 \times 4 = 4$ (G) · $11 \times 2 = 22$ (A) · $6 \times 9 = 54$ (S) · $8 \times 12 = 96$ (N)

Clue 2 (Rounding): "LEFT HAND GRIP TAPE MARKED THE VAULT"

Round 227 to the nearest ten = 230 (L) · Round 431 to the nearest ten = 430 (T) · Round 459 to the nearest hundred = 500 (E) · Round 347 to the nearest hundred = 300 (K) · Round 8,789 to the nearest thousand = 9000 (M) · Round 4,284 to the nearest hundred = 4300 (R) · Round 1,661 to the nearest thousand = 2000 (D) · Round 48 to the nearest ten = 50 (I) · Round 672 to the nearest hundred = 700 (H) · Round 1,061 to the nearest hundred = 1100 (G) · Round 1,738 to the nearest hundred = 1700 (P) · Round 19 to the nearest ten = 20 (U) · Round 31 to the nearest ten = 30 (A) · Round 111 to the nearest ten = 110 (N) · Round 2,816 to the nearest thousand = 3000 (F) · Round 366 to the nearest ten = 370 (V)

Clue 3 (Addition): "THEY GOT DISTRACTED BY SHINY GOLD MEDALS"

$1560 + 1281 = 2841$ (T) · $3460 + 6436 = 9896$ (D) · $1523 + 1942 = 3465$ (O) · $4862 + 3157 = 8019$ (N) · $3878 + 5897 = 9775$ (M) · $2633 + 5203 = 7836$ (B) · $2046 + 4231 = 6277$ (L) · $3935 + 2965 = 6900$ (Y) · $3016 + 1353 = 4369$ (E) · $3139 + 1948 = 5087$ (A) · $5217 + 2325 = 7542$ (R) · $2011 + 3078 = 5089$ (G) · $3958 + 5772 = 9730$ (S) · $4316 + 2139 = 6455$ (C) · $1377 + 3097 = 4474$ (I) · $2756 + 3955 = 6711$ (H)

Clue 4 (Subtraction): "GLITTER FROM SPACE BUNS WAS ON THE MAT"

$1525 - 181 = 1344$ (G) · $3891 - 2103 = 1788$ (C) · $9969 - 3243 = 6726$ (U) · $10391 - 3484 = 6907$ (A) · $10992 - 2526 = 8466$ (I) · $4025 - 2302 = 1723$ (W) · $8159 - 2416 = 5743$ (M) · $9611 - 4920 = 4691$ (R) · $6100 - 3732 = 2368$ (N) · $5978 - 3141 = 2837$ (H) · $5713 - 2437 = 3276$ (S) · $5806 - 747 = 5059$ (O) · $3049 - 398 = 2651$ (F) · $11964 - 3842 = 8122$ (P) · $6611 - 1709 = 4902$ (L) · $10296 - 2402 = 7894$ (T) · $6360 - 4618 = 1742$ (B) · $7268 - 2304 = 4964$ (E)

Clue 5 (Division facts (1-12)): surviving statement is box 10 → Laurie

$36 \div 9 = 4$ · $24 \div 3 = 8$ · $66 \div 6 = 11$ · $27 \div 3 = 9$ · $3 \div 1 = 3$ · $49 \div 7 = 7$ · $6 \div 6 = 1$ · $25 \div 5 = 5$ · $132 \div 11 = 12$ · $6 \div 3 = 2$ · $42 \div 7 = 6$