



The Great Unicorn Cup Mystery

Grade 6 math · Place value, Addition, Subtraction, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

During the championship match of the Starlight Cup, a rogue unicorn striker enchanted the match ball and galloped off with the trophy! Coach Sparkle needs your deduction skills to examine clues and clear the pitch.

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 unicorn striker is _____

Possible suspects

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

NAME	KICK STYLE	HORN SPELL	DOMINANT HOOF	MANE COLOR	DISTRACTION ITEM
Silver Stride	Comet Header	Star Burst	Right Hoofed	Silver Mane	Glitter Whistle
Rose Lavelle	Comet Header	Star Burst	Left Hoofed	Pink Mane	Meadow Bell
Velvet Mane	Comet Header	Sparkle Shield	Left Hoofed	Pink Mane	Glitter Whistle
Prism Kicker	Comet Header	Sparkle Shield	Right Hoofed	Silver Mane	Meadow Bell
Christine Sinclair	Solar Volley	Glow Blast	Left Hoofed	Pink Mane	Sparkle Net
Rainbow Striker	Comet Header	Star Burst	Left Hoofed	Pink Mane	Sparkle Net
Sparkle Swift	Curling Kick	Horn Flash	Right Hoofed	Pink Mane	Meadow Bell
Kadeisha Buchanan	Solar Volley	Rainbow Dash	Right Hoofed	Silver Mane	Glitter Whistle
Glitter Goalie	Curling Kick	Rainbow Dash	Left Hoofed	Gold Mane	Glitter Whistle
Cloud Jumper	Rainbow Shot	Star Burst	Left Hoofed	Pink Mane	Glitter Whistle
Sophia Smith	Comet Header	Rainbow Dash	Left Hoofed	Pink Mane	Glitter Whistle
Crystal Runner	Curling Kick	Rainbow Dash	Left Hoofed	Pink Mane	Glitter Whistle
Megan Rapinoe	Curling Kick	Horn Flash	Left Hoofed	Silver Mane	Meadow Bell
Sunny Dash	Solar Volley	Rainbow Dash	Left Hoofed	Silver Mane	Glitter Whistle
Star Hopper	Solar Volley	Star Burst	Right Hoofed	Gold Mane	Sparkle Net
Crystal Dunn	Curling Kick	Star Burst	Left Hoofed	Pink Mane	Sparkle Net
Trinity Rodman	Solar Volley	Horn Flash	Left Hoofed	Pink Mane	Glitter Whistle
Debinha	Comet Header	Horn Flash	Right Hoofed	Pink Mane	Glitter Whistle
Alyssa Naeher	Comet Header	Star Burst	Left Hoofed	Silver Mane	Glitter Whistle
Glow Trotter	Solar Volley	Glow Blast	Right Hoofed	Pink Mane	Glitter Whistle
Alex Morgan	Curling Kick	Sparkle Shield	Right Hoofed	Silver Mane	Glitter Whistle

CLUE 1 Place value

You check the digit displays on the main stadium scoreboard to narrow down suspect jersey numbers.

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

Diagram illustrating the sequence of numbers and the placement of 'T' markers:

Row 1: 300 (T), 80, 70, 6000, 90, 6000, 8000, 70, 500, 300 (T), 7000, 30, 70, 6000, 60, 30, 300 (T)

Row 2: 90, 6000, 70, 80, 30, 5000, 60, 40, 100, 9000, 6000, 80

What is the value of the 3 in 52,362?



What is the value of the 8 in 298,136?

A diagram showing a box with a question mark pointing to a box with the letter P.

What is the value of the 6 in 14,869?

A diagram showing a box with an arrow pointing to a box labeled **N**.

What is the value of the 7 in 417,163?



What is the value of the 6 in 76,979?

A diagram showing a transition from an empty box to a box containing the letter S. The first box is empty, followed by a right-pointing arrow, and then a second box containing the letter 'S'.

What is the value of the 4 in 703,549?

A diagram showing a box with an arrow pointing to a box labeled 'F'.

What is the value of the 9 in 729,335?

? → **A**

What is the value of the 5 in 365,983?

? → **R**

What is the value of the 9 in 107,494?

? → ☒ U

What is the value of the 7 in 44,676?

A diagram showing a transition from an empty box to a box containing the letter E. The first box is empty, followed by a right-pointing arrow, and then a box containing the letter 'E'.

What is the value of the 8 in 661,284?

? → **H**

What is the value of the 3 in 77,030?

A diagram illustrating a transformation. On the left is a rectangle with rounded corners. An arrow points to the right, where there is a square with rounded corners containing a circle in the center.

What is the value of the 5 in 770,548?

?  → 

What is the value of the 1 in 566,197?

?  $\rightarrow$ 

Scratch space:

CLUE 2 Addition

You add up the total training cones left on the practice field to reveal a hidden note.

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

T									T										T	
3290	8174	7688	5947	3007	5947	3808	7688	3198	3290	2653	3220	3198	2653	7688	4951	7134	3220	3290	8174	

T								T				
3290	8174	7688	3220	9466	4910	7688	3582	3290	8174	3253	3253	3582

$1087 + 2203 = \square \rightarrow$ T	$3816 + 3318 = \square \rightarrow$ W	$2989 + 2958 = \square \rightarrow$ S
$1405 + 1848 = \square \rightarrow$ O	$6449 + 3017 = \square \rightarrow$ R	$1961 + 1847 = \square \rightarrow$ P
$2468 + 1114 = \square \rightarrow$ F	$1089 + 2131 = \square \rightarrow$ I	$951 + 2056 = \square \rightarrow$ U
$2142 + 1056 = \square \rightarrow$ C	$4657 + 3031 = \square \rightarrow$ E	$5223 + 2951 = \square \rightarrow$ H
$1295 + 1358 = \square \rightarrow$ K	$2586 + 2365 = \square \rightarrow$ D	$1743 + 3167 = \square \rightarrow$ L

Scratch space:

Subtraction

You subtract the missing water bottles from the bench setup to uncover a secret trail.

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

The diagram consists of two rows of boxes, each representing a sequence of numbers. The top row has 16 boxes, and the bottom row has 16 boxes. Below each box is a number. Some boxes are shaded orange and contain the letter 'T', indicating a specific value or state.

Top Row:

- Box 1: Orange, T (5328)
- Box 2: White (8341)
- Box 3: White (4867)
- Box 4: White (5083)
- Box 5: White (2245)
- Box 6: White (5083)
- Box 7: White (5692)
- Box 8: White (4867)
- Box 9: White (4998)
- Box 10: Orange, T (5328)
- Box 11: White (8870)
- Box 12: White (7000)
- Box 13: White (4867)
- Box 14: White (4867)
- Box 15: White (5083)
- Box 16: White (8870)

Bottom Row:

- Box 1: White (8851)
- Box 2: White (7000)
- Box 3: White (3004)
- Box 4: Orange, T (5328)
- Box 5: Orange, T (5328)
- Box 6: White (4867)
- Box 7: White (4721)
- Box 8: White (8921)
- Box 9: White (8341)
- Box 10: White (3004)
- Box 11: White (5083)
- Box 12: Orange, T (5328)
- Box 13: White (7000)
- Box 14: White (4867)
- Box 15: White (5083)

9670 - 4342 = → **T**

$$5850 - 983 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$12271 - 3350 = \boxed{} \rightarrow \boxed{\text{W}}$$

$$5666 - 2662 = \boxed{} \rightarrow \boxed{\text{I}}$$

$$4337 - 2092 = \boxed{} \rightarrow \boxed{\text{U}}$$

13082 - 4231 = → **G**

$$6301 - 609 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$6453 - 1455 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$10077 - 3077 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$5907 - 3923 = \boxed{} \rightarrow \boxed{0}$$

9755 - 1414 = → **H**

$$8229 - 3146 = \boxed{} \rightarrow \boxed{\text{S}}$$

9113 - 243 = → **F**

$$6886 - 2165 = \boxed{} \rightarrow \boxed{\text{R}}$$

9223 - 4758 = → **M**

Scratch space:

CLUE 4 Multiplication facts (1-12)

You count the shiny soccer cleats stacked in equal rows inside the locker room.

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

A 2x10 grid of boxes. The top row contains the numbers 90, 21, 7, 110, 60, 8, 7, 22, 99, 8, 21, 48, 64, 8, 54. The bottom row contains the numbers 27, 45, 70, 7, 44, 8, 77, 77, 99, 22, 88, 45, 8, 11, 90, 45, 54, 77. The box containing '90' in the top row and the box containing '90' in the bottom row are highlighted in orange and contain a black 'P'.

$9 \times 10 = \square \rightarrow \text{P}$

$10 \times 6 = \boxed{} \rightarrow \boxed{\text{M}}$

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

$1 \times 7 = \boxed{} \rightarrow \boxed{\text{N}}$

$11 \times 10 = \boxed{} \rightarrow \boxed{\text{K}}$

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

$$8 \times 8 = \boxed{} \rightarrow \boxed{W}$$

$2 \times 4 = \boxed{} \rightarrow \boxed{\mathbf{A}}$

$11 \times 7 = \boxed{} \rightarrow \boxed{\text{T}}$

$11 \times 1 = \square \rightarrow \boxed{\mathbf{L}}$

$$9 \times 5 = \boxed{} \rightarrow \boxed{0}$$

$11 \times 4 = \boxed{} \rightarrow \boxed{\text{D}}$

$11 \times 9 = \square \rightarrow \mathbf{H}$

$10 \times 7 = \boxed{} \rightarrow \boxed{\text{U}}$

$7 \times 3 = \boxed{} \rightarrow \boxed{1}$

$11 \times 2 = \square \rightarrow \mathbf{E}$

$8 \times 11 = \boxed{} \rightarrow \boxed{\mathbf{G}}$

$9 \times 3 = \square \rightarrow \mathbf{F}$

Scratch space:

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

You divide the team snack slices equally among the starters to unlock the final report.

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:

$30 \div 6 = \boxed{}$

$120 \div 12 = \boxed{}$

$63 \div 7 = \boxed{}$

$28 \div 4 = \boxed{}$

$33 \div 11 = \boxed{}$

$36 \div 9 = \boxed{}$

$6 \div 3 = \boxed{}$

$48 \div 8 = \boxed{}$

$11 \div 1 = \boxed{}$

$1 \div 1 = \boxed{}$

$144 \div 12 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fired a rainbow shot, then triggered a glow blast.
2. The villain fired a rainbow shot, then flashed their horn.
3. The villain delivered a curling kick, then raised a sparkle shield.
4. The villain sent a prism pass, then used a rainbow dash.
5. The villain fired a rainbow shot, then created a star burst.
6. The villain delivered a curling kick, then flashed their horn.
7. The villain delivered a curling kick, then created a star burst.
8. The villain struck a comet header, then raised a sparkle shield.
9. The villain struck a comet header, then used a rainbow dash.
10. The villain delivered a curling kick, then used a rainbow dash.
11. The villain launched a solar volley, then triggered a glow blast.
12. The villain struck a comet header, then triggered a glow blast.

Answer Key

The Great Unicorn Cup Mystery

Culprit: Velvet Mane

Comet Header · Sparkle Shield · Left Hoofed · Pink Mane · Glitter Whistle

Trail: Start 21 → Clue 1 17 → Clue 2 11 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE SUSPECT DOES NOT USE HORN FLASH"

What is the value of the 3 in 52,362? = 300 (T) · What is the value of the 8 in 298,136? = 8000 (P) · What is the value of the 6 in 14,869? = 60 (N) · What is the value of the 7 in 417,163? = 7000 (D) · What is the value of the 6 in 76,979? = 6000 (S) · What is the value of the 4 in 703,549? = 40 (F) · What is the value of the 9 in 729,335? = 9000 (A) · What is the value of the 5 in 365,983? = 5000 (R) · What is the value of the 9 in 107,494? = 90 (U) · What is the value of the 7 in 44,676? = 70 (E) · What is the value of the 8 in 661,284? = 80 (H) · What is the value of the 3 in 77,030? = 30 (O) · What is the value of the 5 in 770,548? = 500 (C) · What is the value of the 1 in 566,197? = 100 (L)

Clue 2 (Addition): "THE SUSPECT KICKED WITH THEIR LEFT HOOF"

1087 + 2203 = 3290 (T) · 3816 + 3318 = 7134 (W) · 2989 + 2958 = 5947 (S) · 1405 + 1848 = 3253 (O) · 6449 + 3017 = 9466 (R) · 1961 + 1847 = 3808 (P) · 2468 + 1114 = 3582 (F) · 1089 + 2131 = 3220 (I) · 951 + 2056 = 3007 (U) · 2142 + 1056 = 3198 (C) · 4657 + 3031 = 7688 (E) · 5223 + 2951 = 8174 (H) · 1295 + 1358 = 2653 (K) · 2586 + 2365 = 4951 (D) · 1743 + 3167 = 4910 (L)

Clue 3 (Subtraction): "THE SUSPECT FLEES FROM GLITTER WHISTLES"

9670 - 4342 = 5328 (T) · 5850 - 983 = 4867 (E) · 12271 - 3350 = 8921 (W) · 5666 - 2662 = 3004 (I) · 4337 - 2092 = 2245 (U) · 13082 - 4231 = 8851 (G) · 6301 - 609 = 5692 (P) · 6453 - 1455 = 4998 (C) · 10077 - 3077 = 7000 (L) · 5907 - 3923 = 1984 (O) · 9755 - 1414 = 8341 (H) · 8229 - 3146 = 5083 (S) · 9113 - 243 = 8870 (F) · 6886 - 2165 = 4721 (R) · 9223 - 4758 = 4465 (M)

Clue 4 (Multiplication facts (1-12)): "PINK MANE HAIR WAS FOUND AT THE GOAL POST"

$9 \times 10 = 90$ (P) · $10 \times 6 = 60$ (M) · $6 \times 8 = 48$ (R) · $1 \times 7 = 7$ (N) · $11 \times 10 = 110$ (K) · $9 \times 6 = 54$ (S) · $8 \times 8 = 64$ (W) · $2 \times 4 = 8$ (A) · $11 \times 7 = 77$ (T) · $11 \times 1 = 11$ (L) · $9 \times 5 = 45$ (O) · $11 \times 4 = 44$ (D) · $11 \times 9 = 99$ (H) · $10 \times 7 = 70$ (U) · $7 \times 3 = 21$ (I) · $11 \times 2 = 22$ (E) · $8 \times 11 = 88$ (G) · $9 \times 3 = 27$ (F)

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

$30 \div 6 = 5$ · $120 \div 12 = 10$ · $63 \div 7 = 9$ · $28 \div 4 = 7$ · $33 \div 11 = 3$ · $36 \div 9 = 4$ · $6 \div 3 = 2$ · $48 \div 8 = 6$ · $11 \div 1 = 11$ · $1 \div 1 = 1$ · $144 \div 12 = 12$