The Great Jurassic Lagoon Soccer Cup Mystery

Grade 8 math · Exponents, Square roots, Pythagorean theorem, Order of operations, Two-step equations · Reading level grades 3-4

Detective: _____ **Date:** _____

The championship game of the Jurassic Lagoon Soccer League was about to begin when the golden trophy ball vanished! A mysterious swimmer zoomed onto the field, kicked a secret power shot, and hid the trophy ball. Use your math clues to figure out who took the ball!

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 Lagoon Mischief Maker is _____

Possible suspects

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

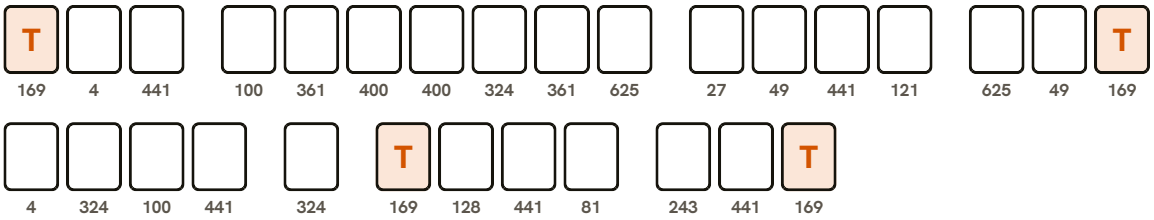
NAME	SOCCER SKILL	DINO MASCOT COMPANION	KICKING FOOT	TAIL FIN COLOR	FAVORITE SNACK
Kylian Shellback	Tidal Tackle	TRex Pet	Right Footed	Coral Pink Fin	Seaweed Chips
Pernille Harder	Whirlpool Dribble	TRex Pet	Right Footed	Coral Pink Fin	Seaweed Chips
Wendie Renard	Mega Pass	Velociraptor Pet	Right Footed	Sapphire Blue Fin	Plankton Patties
Pele Plesio	Whirlpool Dribble	Stegosaurus Pet	Left Footed	Coral Pink Fin	Plankton Patties
Luka Modric	Bicycle Kick	Ankylosaurus Pet	Right Footed	Sapphire Blue Fin	Seaweed Chips
Erling Haaland	Bicycle Kick	Velociraptor Pet	Right Footed	Sapphire Blue Fin	Kelpie Crunchies
Marta Fin	Bicycle Kick	Ankylosaurus Pet	Right Footed	Coral Pink Fin	Seaweed Chips
Aitana Bonmati	Tidal Tackle	Velociraptor Pet	Left Footed	Emerald Green Fin	Plankton Patties
Antoine Griezmann	Tail Header	Velociraptor Pet	Right Footed	Sapphire Blue Fin	Kelpie Crunchies
Lionel Tide	Whirlpool Dribble	TRex Pet	Right Footed	Sapphire Blue Fin	Plankton Patties
Lucy Bronze	Bicycle Kick	Velociraptor Pet	Left Footed	Coral Pink Fin	Seaweed Chips
Rose Lavelle	Whirlpool Dribble	Ankylosaurus Pet	Right Footed	Sapphire Blue Fin	Plankton Patties
Mohamed Splash	Whirlpool Dribble	Triceratops Pet	Right Footed	Sapphire Blue Fin	Plankton Patties
Son Heung Min	Tail Header	Triceratops Pet	Right Footed	Sapphire Blue Fin	Plankton Patties
Megan Shell	Whirlpool Dribble	TRex Pet	Right Footed	Emerald Green Fin	Kelpie Crunchies
Alex Morgana	Whirlpool Dribble	Stegosaurus Pet	Left Footed	Emerald Green Fin	Seaweed Chips
Cristiano Wave	Whirlpool Dribble	Ankylosaurus Pet	Left Footed	Coral Pink Fin	Kelpie Crunchies
Kevin De Splash	Tail Header	Velociraptor Pet	Left Footed	Sapphire Blue Fin	Plankton Patties
Sam Kerrigan	Mega Pass	Stegosaurus Pet	Right Footed	Coral Pink Fin	Seaweed Chips
Virgil Van Reef	Tidal Tackle	Ankylosaurus Pet	Left Footed	Coral Pink Fin	Kelpie Crunchies
Trinity Rodman	Tidal Tackle	Ankylosaurus Pet	Right Footed	Emerald Green Fin	Plankton Patties

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CLUE 1 Exponents

> The stadium scoreboard measures power in exponential boosts. Solve the exponent puzzle to reveal the first suspect lead.

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



13^2 = ☐ → T

5^4 = ☐ → N

18^2 = ☐ → A

2^2 = ☐ → H

19^2 = ☐ → I

2^7 = ☐ → R

10^2 = ☐ → V

9^2 = ☐ → X

21^2 = ☐ → E

20^2 = ☐ → L

3^5 = ☐ → P

11^2 = ☐ → S

3^3 = ☐ → D

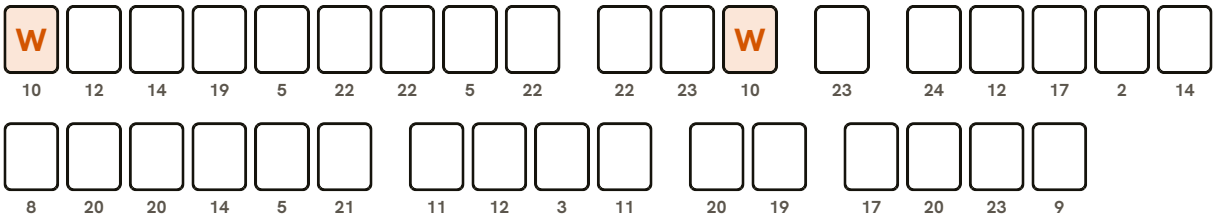
7^2 = ☐ → O

Scratch space:

CLUE 2 Square roots

> The referee scanned the square stadium field to trace the culprit path. Calculate the square roots to unlock the next clue.

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



sqrt(100) = ☐ → W

sqrt(4) = ☐ → H

sqrt(529) = ☐ → A

sqrt(441) = ☐ → D

sqrt(144) = ☐ → I

sqrt(81) = ☐ → L

sqrt(289) = ☐ → G

sqrt(361) = ☐ → N

sqrt(400) = ☐ → O

sqrt(121) = ☐ → K

sqrt(484) = ☐ → S

sqrt(196) = ☐ → T

sqrt(9) = ☐ → C

sqrt(576) = ☐ → R

sqrt(64) = ☐ → F

sqrt(25) = ☐ → E

Scratch space:

CLUE 3 Pythagorean theorem

> The mystery kicker ran diagonally across the pitch from corner to corner. Use the right triangle distance to spot the evidence.

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

C															
30	87	10	74	65	52	5	17	75	39	58	25	29	13	5	25

														C	
75	58	13	13	41	68	52	5	25	13	50	68	65	68	25	30	50

legs 18 and 24, hypotenuse = ☐ → C

legs 8 and 15, hypotenuse = ☐ → F

legs 20 and 21, hypotenuse = ☐ → K

legs 7 and 24, hypotenuse = ☐ → N

legs 32 and 60, hypotenuse = ☐ → E

legs 40 and 42, hypotenuse = ☐ → A

legs 60 and 63, hypotenuse = ☐ → R

legs 24 and 70, hypotenuse = ☐ → M

legs 5 and 12, hypotenuse = ☐ → T

legs 15 and 36, hypotenuse = ☐ → L

legs 9 and 40, hypotenuse = ☐ → I

legs 14 and 48, hypotenuse = ☐ → H

legs 6 and 8, hypotenuse = ☐ → U

legs 21 and 72, hypotenuse = ☐ → P

legs 3 and 4, hypotenuse = ☐ → O

legs 20 and 48, hypotenuse = ☐ → S

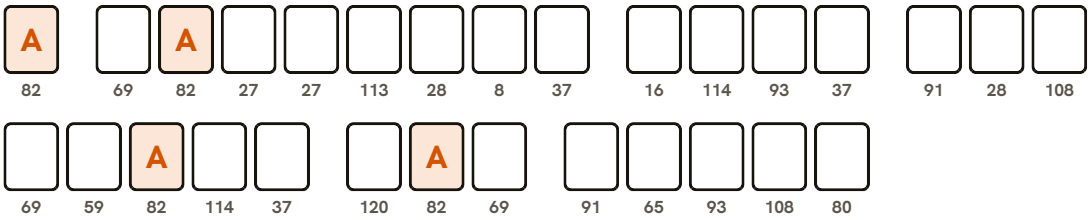
legs 25 and 60, hypotenuse = ☐ → B

Scratch space:

CLUE 4 Order of operations

> The stadium computer tallied the penalty stats using strict rules. Work through the steps in order to decode the message.

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



11 × 9 - 17 = ☐ → A	10 + 9 × 2 = ☐ → I	12 × 12 - 24 = ☐ → W
68 + 5 × 8 = ☐ → N	10 × 4 - 24 = ☐ → B	9 × 12 - 28 = ☐ → D
53 + 2 × 3 = ☐ → C	1 + 9 × 4 = ☐ → E	57 + 4 × 3 = ☐ → S
7 × 4 - 1 = ☐ → P	11 × 11 - 8 = ☐ → H	2 + 3 × 2 = ☐ → R
59 + 3 × 2 = ☐ → O	61 + 6 × 5 = ☐ → F	11 × 12 - 18 = ☐ → L
81 + 3 × 4 = ☐ → U		

Scratch space:

CLUE 5 Two-step equations - the last clue

> The detective found a locked locker with two key numbers needed to open it. Solve the equations to find 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:

4x + 12 = 20, x = ☐	4x + 7 = 47, x = ☐	5x + 3 = 8, x = ☐	5x + 6 = 66, x = ☐
3x + 7 = 22, x = ☐	5x + 10 = 50, x = ☐	6x + 7 = 31, x = ☐	2x + 11 = 23, x = ☐
4x + 3 = 15, x = ☐	6x + 9 = 63, x = ☐	2x + 5 = 27, x = ☐	

Step 2 - cross out the sentence with each answer:

1. The villain performed a tail header, then signaled a triceratops pet.
2. The villain executed a whirlpool dribble, then signaled a triceratops pet.
3. The villain performed a tail header, then called a trex pet.
4. The villain executed a whirlpool dribble, then called a trex pet.
5. The villain executed a whirlpool dribble, then summoned a velociraptor pet.
6. The villain delivered a mega pass, then sent an ankylosaurus pet.
7. The villain delivered a mega pass, then summoned a velociraptor pet.
8. The villain performed a tail header, then summoned a velociraptor pet.
9. The villain used a bicycle kick to score, then called a trex pet.
10. The villain executed a whirlpool dribble, then sent an ankylosaurus pet.
11. The villain delivered a mega pass, then called a trex pet.
12. The villain used a bicycle kick to score, then sent an ankylosaurus pet.

TEACHER / PARENT

Answer Key

The Great Jurassic Lagoon Soccer Cup Mystery

Culprit: Wendie Renard

Mega Pass · Velociraptor Pet · Right Footed · Sapphire Blue Fin · Plankton Patties

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

Clue 1 (Exponents): "THE VILLAIN DOES NOT HAVE A TREX PET"

13^2 = 169 (T) · 5^4 = 625 (N) · 18^2 = 324 (A) · 2^2 = 4 (H) · 19^2 = 361 (I) · 2^7 = 128 (R) · 10^2 = 100 (V) · 9^2 = 81 (X) · 21^2 = 441 (E) · 20^2 = 400 (L) · 3^5 = 243 (P) · 11^2 = 121 (S) · 3^3 = 27 (D) · 7^2 = 49 (O)

Clue 2 (Square roots): "WITNESSES SAW A RIGHT FOOTED KICK ON GOAL"

sqrt(100) = 10 (W) · sqrt(4) = 2 (H) · sqrt(529) = 23 (A) · sqrt(441) = 21 (D) · sqrt(144) = 12 (I) · sqrt(81) = 9 (L) · sqrt(289) = 17 (G) · sqrt(361) = 19 (N) · sqrt(400) = 20 (O) · sqrt(121) = 11 (K) · sqrt(484) = 22 (S) · sqrt(196) = 14 (T) · sqrt(9) = 3 (C) · sqrt(576) = 24 (R) · sqrt(64) = 8 (F) · sqrt(25) = 5 (E)

Clue 3 (Pythagorean theorem): "CRUMBS OF PLANKTON PATTIES ON THE BENCH"

legs 18 and 24, hypotenuse = 30 (C) · legs 8 and 15, hypotenuse = 17 (F) · legs 20 and 21, hypotenuse = 29 (K) · legs 7 and 24, hypotenuse = 25 (N) · legs 32 and 60, hypotenuse = 68 (E) · legs 40 and 42, hypotenuse = 58 (A) · legs 60 and 63, hypotenuse = 87 (R) · legs 24 and 70, hypotenuse = 74 (M) · legs 5 and 12, hypotenuse = 13 (T) · legs 15 and 36, hypotenuse = 39 (L) · legs 9 and 40, hypotenuse = 41 (I) · legs 14 and 48, hypotenuse = 50 (H) · legs 6 and 8, hypotenuse = 10 (U) · legs 21 and 72, hypotenuse = 75 (P) · legs 3 and 4, hypotenuse = 5 (O) · legs 20 and 48, hypotenuse = 52 (S) · legs 25 and 60, hypotenuse = 65 (B)

Clue 4 (Order of operations): "A SAPPHIRE BLUE FIN SCALE WAS FOUND"

11 × 9 - 17 = 82 (A) · 10 + 9 × 2 = 28 (I) · 12 × 12 - 24 = 120 (W) · 68 + 5 × 8 = 108 (N) · 10 × 4 - 24 = 16 (B) · 9 × 12 - 28 = 80 (D) · 53 + 2 × 3 = 59 (C) · 1 + 9 × 4 = 37 (E) · 57 + 4 × 3 = 69 (S) · 7 × 4 - 1 = 27 (P) · 11 × 11 - 8 = 113 (H) · 2 + 3 × 2 = 8 (R) · 59 + 3 × 2 = 65 (O) · 61 + 6 × 5 = 91 (F) · 11 × 12 - 18 = 114 (L) · 81 + 3 × 4 = 93 (U)

Clue 5 (Two-step equations): surviving statement is box 7 → Wendie Renard

4x + 12 = 20, x = 2 · 4x + 7 = 47, x = 10 · 5x + 3 = 8, x = 1 · 5x + 6 = 66, x = 12 · 3x + 7 = 22, x = 5 · 5x + 10 = 50, x = 8 · 6x + 7 = 31, x = 4 · 2x + 11 = 23, x = 6 · 4x + 3 = 15, x = 3 · 6x + 9 = 63, x = 9 · 2x + 5 = 27, x = 11