



# The Missing Championship Trophy Mystery

Grade 10 math · Pythagorean theorem, Square roots, Exponents, Order of operations · Reading level grades 7-9

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

Right before the national championship game, someone sneaked into Coach Miller's office and swapped the championship trophy with a rubber practice ball! The arena is locked down, but 24 top players are in the stadium. Analyze the game tape and field data to catch the rogue.

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 lacrosse rogue is** \_\_\_\_\_

# Possible suspects

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

| NAME            | SIGNATURE MOVE    | STICK TYPE      | DOMINANT HAND | MESH COLOR | ENVIRONMENTAL WEAKNESS |
|-----------------|-------------------|-----------------|---------------|------------|------------------------|
| John Grant Jr   | BTB Pass          | Composite Shaft | Right Handed  | Black Mesh | Slick Turf             |
| Kyle Harrison   | Toe Drag          | Titanium Shaft  | Left Handed   | Neon Mesh  | Slick Turf             |
| Brody Roybal    | Crank Shot        | Aluminum Shaft  | Right Handed  | Neon Mesh  | Slick Turf             |
| Grant Ament     | BTB Pass          | Titanium Shaft  | Right Handed  | Black Mesh | Slick Turf             |
| Michael Sowers  | BTB Pass          | Titanium Shaft  | Left Handed   | White Mesh | Muddy Crease           |
| Blaze Riorden   | BTB Pass          | Wooden Stick    | Left Handed   | White Mesh | Muddy Crease           |
| Zach Currier    | Crank Shot        | Carbon Shaft    | Left Handed   | Black Mesh | Slick Turf             |
| Gary Gait       | Faceoff Clamp     | Wooden Stick    | Right Handed  | Black Mesh | Slick Turf             |
| Tom Schreiber   | Toe Drag          | Aluminum Shaft  | Left Handed   | Neon Mesh  | Loud Whistle           |
| Lyle Thompson   | Toe Drag          | Wooden Stick    | Left Handed   | White Mesh | Muddy Crease           |
| Paul Rabil      | Crank Shot        | Wooden Stick    | Left Handed   | Neon Mesh  | Muddy Crease           |
| Charlotte North | Toe Drag          | Wooden Stick    | Left Handed   | Neon Mesh  | Slick Turf             |
| Kieran McArdle  | Ground Ball Scoop | Carbon Shaft    | Left Handed   | Neon Mesh  | Loud Whistle           |
| Izzy Scane      | Toe Drag          | Composite Shaft | Left Handed   | Neon Mesh  | Slick Turf             |
| Rob Pannell     | Toe Drag          | Titanium Shaft  | Right Handed  | Neon Mesh  | Slick Turf             |
| Tucker Durkin   | Crank Shot        | Titanium Shaft  | Left Handed   | Neon Mesh  | Slick Turf             |
| Casey Powell    | Toe Drag          | Aluminum Shaft  | Left Handed   | Neon Mesh  | Slick Turf             |
| Kayla Treanor   | Ground Ball Scoop | Composite Shaft | Right Handed  | Neon Mesh  | Loud Whistle           |
| Taylor Cummings | Crank Shot        | Composite Shaft | Left Handed   | White Mesh | Muddy Crease           |
| Matt Rambo      | Toe Drag          | Wooden Stick    | Right Handed  | Black Mesh | Slick Turf             |
| Trevor Baptiste | Crank Shot        | Composite Shaft | Right Handed  | Black Mesh | Muddy Crease           |

## CLUE 1 Pythagorean theorem

To trace the rogue's path across the field, you calculate the diagonal distance between the midfield logo and the corner flag.

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

[illegible]

legs 24 and 45, hypotenuse =   $\rightarrow$  **T**

legs 6 and 8, hypotenuse =   $\rightarrow$  **C**

legs 5 and 12, hypotenuse =   $\rightarrow$  **E**

legs 27 and 120, hypotenuse =   $\rightarrow$

legs 30 and 40, hypotenuse =   $\rightarrow$  **K**

legs 25 and 60, hypotenuse =   $\rightarrow$  **H**

legs 24 and 32, hypotenuse =   $\rightarrow$

legs 3 and 4, hypotenuse =   $\rightarrow$  **S**

legs 40 and 42, hypotenuse =   $\rightarrow$  **P**

legs 36 and 105, hypotenuse =   $\rightarrow$  **U**

legs 18 and 80, hypotenuse =  → **N**

legs 8 and 15, hypotenuse =  → **A**

legs 60 and 63, hypotenuse =   $\rightarrow$  **D**

legs 20 and 21, hypotenuse =   $\rightarrow$  **W**

Scratch space:

## CLUE 2 Square roots

Security footage shows the suspect escaped through a square penalty box whose total floor area is known.

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

|    |    |    |    |   |   |    |    |   |    |    |    |    |    |    |    |    |
|----|----|----|----|---|---|----|----|---|----|----|----|----|----|----|----|----|
| T  |    |    |    |   |   |    |    |   | T  |    |    | T  |    |    |    |    |
| 19 | 23 | 12 | 13 | 8 | 7 | 22 | 25 | 9 | 19 | 13 | 17 | 19 | 13 | 23 | 12 | 18 |

  

|   |   |   |   |    |   |    |    |    |    |    |   |    |    |    |    |    |   |    |
|---|---|---|---|----|---|----|----|----|----|----|---|----|----|----|----|----|---|----|
|   |   |   |   |    |   | T  |    | T  |    |    |   |    | T  |    |    |    |   |    |
| 5 | 2 | 7 | 3 | 21 | 9 | 19 | 23 | 19 | 23 | 12 | 7 | 12 | 24 | 19 | 23 | 17 | 2 | 20 |

$\sqrt{361} = \square \rightarrow \boxed{\text{T}}$

$\sqrt{49} = \square \rightarrow \boxed{\text{L}}$

$\sqrt{81} = \square \rightarrow \boxed{\text{I}}$

$\sqrt{4} = \square \rightarrow \boxed{\text{N}}$

$\sqrt{484} = \square \rightarrow \boxed{\text{P}}$

$\sqrt{441} = \square \rightarrow \boxed{\text{W}}$

$\sqrt{64} = \square \rightarrow \boxed{\text{U}}$

$\sqrt{289} = \square \rightarrow \boxed{\text{A}}$

$\sqrt{9} = \square \rightarrow \boxed{\text{Y}}$

$\sqrt{324} = \square \rightarrow \boxed{\text{S}}$

$\sqrt{576} = \square \rightarrow \boxed{\text{F}}$

$\sqrt{400} = \square \rightarrow \boxed{\text{D}}$

$\sqrt{169} = \square \rightarrow \boxed{\text{C}}$

$\sqrt{625} = \square \rightarrow \boxed{\text{R}}$

$\sqrt{25} = \square \rightarrow \boxed{\text{O}}$

$\sqrt{529} = \square \rightarrow \boxed{\text{H}}$

$\sqrt{144} = \square \rightarrow \boxed{\text{E}}$

Scratch space:

## CLUE 3 Exponents

The rogue's digital tracking tag transmits power levels that double exponentially with each passing minute.

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

|     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |     |  |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|--|
| T   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |     |  |
| 625 | 25 | 169 | 400 | 4   | 169 | 32  | 8   | 400 | 196 | 216 | 729 | 729 | 169 | 121 | 32 | 225 | 32 | 324 |  |
|     |    | T   |     |     |     |     |     |     |     | T   |     |     |     |     |    |     |    |     |  |
| 49  | 4  | 625 | 25  | 169 | 400 | 196 | 216 | 64  | 8   | 625 | 289 | 128 | 125 |     |    |     |    |     |  |

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| $5^4 = \square \rightarrow$ T  | $11^2 = \square \rightarrow$ D | $7^2 = \square \rightarrow$ O  | $20^2 = \square \rightarrow$ S |
| $15^2 = \square \rightarrow$ W | $13^2 = \square \rightarrow$ E | $3^6 = \square \rightarrow$ P  | $18^2 = \square \rightarrow$ Y |
| $2^7 = \square \rightarrow$ R  | $5^2 = \square \rightarrow$ H  | $14^2 = \square \rightarrow$ L | $2^5 = \square \rightarrow$ A  |
| $2^2 = \square \rightarrow$ N  | $4^3 = \square \rightarrow$ C  | $6^3 = \square \rightarrow$ I  | $17^2 = \square \rightarrow$ U |
| $5^3 = \square \rightarrow$ F  | $2^3 = \square \rightarrow$ K  |                                |                                |

Scratch space:

**CLUE 4**
**Order of operations**

To decode the lock combination on the equipment trunk, you solve the complex stat evaluation formula.

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

|          |    |    |    |    |    |    |    |    |    |    |    |     |    |     |    |     |
|----------|----|----|----|----|----|----|----|----|----|----|----|-----|----|-----|----|-----|
| <b>B</b> |    |    |    |    |    |    |    |    |    |    |    |     |    |     |    |     |
| 90       | 43 | 39 | 52 | 60 | 53 | 74 | 73 | 94 | 74 | 63 | 73 | 114 | 60 | 116 | 14 | 114 |
|          |    |    |    |    |    |    |    |    |    |    |    |     |    |     |    |     |
| 33       | 43 | 94 | 30 | 30 | 73 | 33 | 74 | 73 | 14 | 43 | 53 | 60  | 73 | 52  | 94 | 14  |

$63 + 3 \times 9 = \square \rightarrow \text{B}$

$9 \times 9 - 8 = \square \rightarrow \text{E}$

$9 \times 7 - 20 = \square \rightarrow \text{R}$

$8 \times 7 - 3 = \square \rightarrow \text{T}$

$12 \times 7 - 21 = \square \rightarrow \text{M}$

$7 \times 9 - 3 = \square \rightarrow \text{H}$

$64 + 5 \times 2 = \square \rightarrow \text{N}$

$28 + 3 \times 8 = \square \rightarrow \text{G}$

$12 + 6 \times 3 = \square \rightarrow \text{P}$

$10 + 2 \times 2 = \square \rightarrow \text{A}$

$11 \times 12 - 18 = \square \rightarrow \text{S}$

$86 + 6 \times 5 = \square \rightarrow \text{W}$

$23 + 2 \times 8 = \square \rightarrow \text{I}$

$11 \times 11 - 27 = \square \rightarrow \text{O}$

$19 + 2 \times 7 = \square \rightarrow \text{D}$

$3 + 3 \times 4 = \square \rightarrow \text{L}$

Scratch space:

**CLUE 5****Square roots - the last clue**

Analyzing the square turf footprint where the trophy was hidden reveals its side length.

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:**

$\sqrt{49} = \boxed{\phantom{00}}$

$\sqrt{121} = \boxed{\phantom{00}}$

$\sqrt{81} = \boxed{\phantom{00}}$

$\sqrt{25} = \boxed{\phantom{00}}$

$\sqrt{36} = \boxed{\phantom{00}}$

$\sqrt{9} = \boxed{\phantom{00}}$

$\sqrt{4} = \boxed{\phantom{00}}$

$\sqrt{100} = \boxed{\phantom{00}}$

$\sqrt{1} = \boxed{\phantom{00}}$

$\sqrt{64} = \boxed{\phantom{00}}$

$\sqrt{144} = \boxed{\phantom{00}}$

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

1. The villain faked a btb pass, then swung a carbon shaft.
2. The villain snatched a ground ball scoop, then slammed a titanium shaft.
3. The villain executed a faceoff clamp, then brandished a wooden stick.
4. The villain danced around with a toe drag, then carried a composite shaft.
5. The villain danced around with a toe drag, then swung a carbon shaft.
6. The villain faked a btb pass, then slammed a titanium shaft.
7. The villain danced around with a toe drag, then flourished an aluminum shaft.
8. The villain unleashed a crank shot, then brandished a wooden stick.
9. The villain unleashed a crank shot, then slammed a titanium shaft.
10. The villain unleashed a crank shot, then carried a composite shaft.
11. The villain danced around with a toe drag, then slammed a titanium shaft.
12. The villain snatched a ground ball scoop, then carried a composite shaft.

# Answer Key

## The Missing Championship Trophy Mystery

### Culprit: Izzy Scane

Toe Drag · Composite Shaft · Left Handed · Neon Mesh · Slick Turf

Trail: Start 21 → Clue 1 15 → Clue 2 9 → Clue 3 5 → Clue 4 4 → Clue 5 1

#### Clue 1 (Pythagorean theorem): "THE SUSPECT DOES NOT USE A WOODEN STICK"

legs 24 and 45, hypotenuse = 51 (T) · legs 6 and 8, hypotenuse = 10 (C) · legs 5 and 12, hypotenuse = 13 (E) · legs 27 and 120, hypotenuse = 123 (O) · legs 30 and 40, hypotenuse = 50 (K) · legs 25 and 60, hypotenuse = 65 (H) · legs 24 and 32, hypotenuse = 40 (I) · legs 3 and 4, hypotenuse = 5 (S) · legs 40 and 42, hypotenuse = 58 (P) · legs 36 and 105, hypotenuse = 111 (U) · legs 18 and 80, hypotenuse = 82 (N) · legs 8 and 15, hypotenuse = 17 (A) · legs 60 and 63, hypotenuse = 87 (D) · legs 20 and 21, hypotenuse = 29 (W)

#### Clue 2 (Square roots): "THE CULPRIT CATCHES ONLY WITH THE LEFT HAND"

$\sqrt{361} = 19$  (T) ·  $\sqrt{49} = 7$  (L) ·  $\sqrt{81} = 9$  (I) ·  $\sqrt{4} = 2$  (N) ·  $\sqrt{484} = 22$  (P) ·  $\sqrt{441} = 21$  (W) ·  $\sqrt{64} = 8$  (U) ·  $\sqrt{289} = 17$  (A) ·  $\sqrt{9} = 3$  (Y) ·  $\sqrt{324} = 18$  (S) ·  $\sqrt{576} = 24$  (F) ·  $\sqrt{400} = 20$  (D) ·  $\sqrt{169} = 13$  (C) ·  $\sqrt{625} = 25$  (R) ·  $\sqrt{25} = 5$  (O) ·  $\sqrt{529} = 23$  (H) ·  $\sqrt{144} = 12$  (E)

#### Clue 3 (Exponents): "THE SNEAK SLIPPED AWAY ON THE SLICK TURF"

$5^4 = 625$  (T) ·  $11^2 = 121$  (D) ·  $7^2 = 49$  (O) ·  $20^2 = 400$  (S) ·  $15^2 = 225$  (W) ·  $13^2 = 169$  (E) ·  $3^6 = 729$  (P) ·  $18^2 = 324$  (Y) ·  $2^7 = 128$  (R) ·  $5^2 = 25$  (H) ·  $14^2 = 196$  (L) ·  $2^5 = 32$  (A) ·  $2^2 = 4$  (N) ·  $4^3 = 64$  (C) ·  $6^3 = 216$  (I) ·  $17^2 = 289$  (U) ·  $5^3 = 125$  (F) ·  $2^3 = 8$  (K)

#### Clue 4 (Order of operations): "BRIGHT NEON MESH WAS DROPPED NEAR THE GOAL"

$63 + 3 \times 9 = 90$  (B) ·  $9 \times 9 - 8 = 73$  (E) ·  $9 \times 7 - 20 = 43$  (R) ·  $8 \times 7 - 3 = 53$  (T) ·  $12 \times 7 - 21 = 63$  (M) ·  $7 \times 9 - 3 = 60$  (H) ·  $64 + 5 \times 2 = 74$  (N) ·  $28 + 3 \times 8 = 52$  (G) ·  $12 + 6 \times 3 = 30$  (P) ·  $10 + 2 \times 2 = 14$  (A) ·  $11 \times 12 - 18 = 114$  (S) ·  $86 + 6 \times 5 = 116$  (W) ·  $23 + 2 \times 8 = 39$  (I) ·  $11 \times 11 - 27 = 94$  (O) ·  $19 + 2 \times 7 = 33$  (D) ·  $3 + 3 \times 4 = 15$  (L)

#### Clue 5 (Square roots): surviving statement is box 4 → Izzy Scane

$\sqrt{49} = 7$  ·  $\sqrt{121} = 11$  ·  $\sqrt{81} = 9$  ·  $\sqrt{25} = 5$  ·  $\sqrt{36} = 6$  ·  $\sqrt{9} = 3$  ·  $\sqrt{4} = 2$  ·  $\sqrt{100} = 10$  ·  $\sqrt{1} = 1$  ·  $\sqrt{64} = 8$  ·  $\sqrt{144} = 12$