



The Championship Trophy Heist

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

Detective: _____ **Date:** _____

Hours before the final championship match, someone broke into the stadium trophy room and swapped the gold cup with a plastic decoy. The head groundskeeper spotted a masked player darting across the pitch. Use the evidence from the stadium security logs to identify the thief.

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 stadium saboteur is _____

Possible suspects

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

NAME	SIGNATURE STRIKE	PLAYER GEAR	DOMINANT FOOT	HEADBAND STYLE	PITCH OBSTACLE
Thibaut	Curving Corner	Tracking Vest	Left Footed	Black Headband	Loud Whistle
Heungmin	Trivela Pass	Padded Gloves	Left Footed	Red Headband	Loud Whistle
Megan	Bicycle Kick	Shin Guards	Left Footed	Red Headband	Bright Light
Luka	Power Volley	Tracking Vest	Right Footed	Black Headband	Slippery Grass
Cristiano	Trivela Pass	Captain Armband	Right Footed	Black Headband	Loud Whistle
Pedri	Curving Corner	Tracking Vest	Right Footed	Black Headband	Bright Light
Sam	Trivela Pass	Captain Armband	Left Footed	Neon Headband	Loud Whistle
Marcus	Curving Corner	Tracking Vest	Left Footed	Red Headband	Slippery Grass
Declan	Bicycle Kick	Grip Socks	Left Footed	Neon Headband	Loud Whistle
Jude	Power Volley	Padded Gloves	Right Footed	Black Headband	Loud Whistle
Lucy	Curving Corner	Shin Guards	Left Footed	Neon Headband	Slippery Grass
Manuel	Bicycle Kick	Tracking Vest	Right Footed	Neon Headband	Loud Whistle
Kevin	Trivela Pass	Tracking Vest	Right Footed	Black Headband	Loud Whistle
Virgil	Curving Corner	Padded Gloves	Right Footed	Red Headband	Slippery Grass
Jamal	Trivela Pass	Padded Gloves	Right Footed	Black Headband	Slippery Grass
Lionel	Knuckleball	Shin Guards	Right Footed	Black Headband	Loud Whistle
Bukayo	Bicycle Kick	Grip Socks	Right Footed	Black Headband	Loud Whistle
Federico	Trivela Pass	Tracking Vest	Right Footed	Black Headband	Slippery Grass
Kylian	Trivela Pass	Grip Socks	Right Footed	Red Headband	Loud Whistle
Sergio	Power Volley	Shin Guards	Right Footed	Black Headband	Slippery Grass
Alex	Curving Corner	Captain Armband	Right Footed	Red Headband	Bright Light

CLUE 1

Pythagorean theorem

To trace the ball's diagonal path across the pitch from the sideline to the penalty spot, analyze the field measurements.

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

T								T										T
20	5	34	50	74	125	40	20	34	51	85	111	40	34	50	100	40	20	
								T										
68	34	74	85	74	10	74	75	20	74	41	100	74	85	37	125	74	100	111

legs 12 and 16, hypotenuse = → **T**

legs 35 and 120, hypotenuse = → **B**

legs 36 and 105, hypotenuse = → **D**

legs 6 and 8, hypotenuse = → **C**

legs 12 and 35, hypotenuse = → **M**

legs 24 and 32, hypotenuse = → **O**

legs 28 and 96, hypotenuse = → **N**

legs 21 and 72, hypotenuse = → **P**

legs 9 and 40, hypotenuse = → **I**

legs 3 and 4, hypotenuse = → **H**

legs 24 and 45, hypotenuse = → **U**

legs 32 and 60, hypotenuse = → **W**

legs 16 and 30, hypotenuse = → **E**

legs 40 and 75, hypotenuse = → **R**

legs 24 and 70, hypotenuse = → **A**

legs 30 and 40, hypotenuse = → **S**

Scratch space:

CLUE 2 Square roots

To calculate the side length of the square training turf grid from its total area, solve the side dimensions.

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

T						T						T						
25	12	13	3	24	24	25	21	15	5	9	25	23	23	12	24	2	16	
				T				T										
15	5	14	12	25	3	24	24	25	13	10	21	19	16	4	13	15		

$\sqrt{625} = \square \rightarrow$ T	$\sqrt{4} = \square \rightarrow$ W	$\sqrt{576} = \square \rightarrow$ O
$\sqrt{25} = \square \rightarrow$ I	$\sqrt{256} = \square \rightarrow$ A	$\sqrt{441} = \square \rightarrow$ P
$\sqrt{169} = \square \rightarrow$ E	$\sqrt{16} = \square \rightarrow$ Y	$\sqrt{225} = \square \rightarrow$ R
$\sqrt{81} = \square \rightarrow$ N	$\sqrt{361} = \square \rightarrow$ L	$\sqrt{144} = \square \rightarrow$ H
$\sqrt{100} = \square \rightarrow$ D	$\sqrt{9} = \square \rightarrow$ F	$\sqrt{529} = \square \rightarrow$ S
$\sqrt{196} = \square \rightarrow$ G		

Scratch space:

CLUE 3 Exponents

To measure how stadium speaker volume increased exponentially each minute during the disturbance, analyze the sound data.

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

T																	
324	64	484	144	625	484	343	125	361	343	144	144	324	400	36	36	484	16

49	729	343	225	400	243	16	361	64	441	144	324	225	484	

$18^2 = \square \rightarrow$ T	$22^2 = \square \rightarrow$ E	$15^2 = \square \rightarrow$ L	$19^2 = \square \rightarrow$ W
$8^2 = \square \rightarrow$ H	$12^2 = \square \rightarrow$ S	$4^2 = \square \rightarrow$ D	$7^3 = \square \rightarrow$ A
$5^4 = \square \rightarrow$ N	$6^2 = \square \rightarrow$ P	$3^5 = \square \rightarrow$ U	$9^3 = \square \rightarrow$ Y
$5^3 = \square \rightarrow$ K	$20^2 = \square \rightarrow$ O	$21^2 = \square \rightarrow$ I	$7^2 = \square \rightarrow$ B

Scratch space:

CLUE 4
Order of operations

To decode the coach's complex tactical board formula step by step, evaluate the operations in correct order.

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

C															
76	19	58	118	12	37	58	80	112	24	113	19	24	76	10	

54	118	24	112	113	24	80	112	24	108	108	54	118	84	76	118	80	118

$11 \times 8 - 12 = \boxed{} \rightarrow \boxed{\text{C}}$

$11 \times 12 - 19 = \boxed{} \rightarrow \boxed{\text{B}}$

$6 \times 7 - 23 = \boxed{} \rightarrow \boxed{\text{L}}$

$96 \div 2 \times 6 = \boxed{} \rightarrow \boxed{\text{T}}$

$9 \times 12 - 24 = \boxed{} \rightarrow \boxed{\text{S}}$

$11 \times 7 - 19 = \boxed{} \rightarrow \boxed{\text{U}}$

$22 + 4 \times 8 = \boxed{} \rightarrow \boxed{\text{H}}$

$12 \times 10 - 2 = \boxed{} \rightarrow \boxed{\text{E}}$

$62 \div 3 \times 6 = \boxed{} \rightarrow \boxed{\text{N}}$

$6 + 3 \times 6 = \boxed{} \rightarrow \boxed{\text{A}}$

$10 \times 12 - 8 = \boxed{} \rightarrow \boxed{\text{D}}$

$7 \times 7 - 12 = \boxed{} \rightarrow \boxed{\text{O}}$

$8 + 2 \times 2 = \boxed{} \rightarrow \boxed{\text{F}}$

$10 \times 3 - 20 = \boxed{} \rightarrow \boxed{\text{K}}$

Scratch space:

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

To find the exact width of the square goal box from its square footage, compute the root.

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:

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

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

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

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

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

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

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

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

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

$\sqrt{16} = \boxed{}$

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

Step 2 - cross out the sentence with each answer:

1. The villain blasted a knuckleball past the guard, then tightened their shin guards.
2. The villain blasted a knuckleball past the guard, then fastened their padded gloves.
3. The villain passed a trivela through the keyhole, then fastened their padded gloves.
4. The villain passed a trivela through the keyhole, then tightened their shin guards.
5. The villain blasted a knuckleball past the guard, then dropped a captain armband.
6. The villain blasted a knuckleball past the guard, then adjusted their grip socks.
7. The villain struck a power volley into the control room, then fastened their padded gloves.
8. The villain drilled a bicycle kick through the window, then adjusted their grip socks.
9. The villain struck a power volley into the control room, then tightened their shin guards.
10. The villain drilled a bicycle kick through the window, then tightened their shin guards.
11. The villain passed a trivela through the keyhole, then dropped a captain armband.
12. The villain passed a trivela through the keyhole, then unzipped their tracking vest.

Answer Key

The Championship Trophy Heist

Culprit: Lionel

Knuckleball · Shin Guards · Right Footed · Black Headband · Loud Whistle

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE SABOTEUR DOES NOT WEAR A CAPTAIN ARMBAND"

legs 12 and 16, hypotenuse = 20 (T) · legs 35 and 120, hypotenuse = 125 (B) · legs 36 and 105, hypotenuse = 111 (D) · legs 6 and 8, hypotenuse = 10 (C) · legs 12 and 35, hypotenuse = 37 (M) · legs 24 and 32, hypotenuse = 40 (O) · legs 28 and 96, hypotenuse = 100 (N) · legs 21 and 72, hypotenuse = 75 (P) · legs 9 and 40, hypotenuse = 41 (I) · legs 3 and 4, hypotenuse = 5 (H) · legs 24 and 45, hypotenuse = 51 (U) · legs 32 and 60, hypotenuse = 68 (W) · legs 16 and 30, hypotenuse = 34 (E) · legs 40 and 75, hypotenuse = 85 (R) · legs 24 and 70, hypotenuse = 74 (A) · legs 30 and 40, hypotenuse = 50 (S)

Clue 2 (Square roots): "THE FOOTPRINTS SHOW A RIGHT FOOTED PLAYER"

$\sqrt{625} = 25$ (T) · $\sqrt{4} = 2$ (W) · $\sqrt{576} = 24$ (O) · $\sqrt{25} = 5$ (I) · $\sqrt{256} = 16$ (A) · $\sqrt{441} = 21$ (P) · $\sqrt{169} = 13$ (E) · $\sqrt{16} = 4$ (Y) · $\sqrt{225} = 15$ (R) · $\sqrt{81} = 9$ (N) · $\sqrt{361} = 19$ (L) · $\sqrt{144} = 12$ (H) · $\sqrt{100} = 10$ (D) · $\sqrt{9} = 3$ (F) · $\sqrt{529} = 23$ (S) · $\sqrt{196} = 14$ (G)

Clue 3 (Exponents): "THE SNEAK WAS STOPPED BY A LOUD WHISTLE"

$18^2 = 324$ (T) · $22^2 = 484$ (E) · $15^2 = 225$ (L) · $19^2 = 361$ (W) · $8^2 = 64$ (H) · $12^2 = 144$ (S) · $4^2 = 16$ (D) · $7^3 = 343$ (A) · $5^4 = 625$ (N) · $6^2 = 36$ (P) · $3^5 = 243$ (U) · $9^3 = 729$ (Y) · $5^3 = 125$ (K) · $20^2 = 400$ (O) · $21^2 = 441$ (I) · $7^2 = 49$ (B)

Clue 4 (Order of operations): "CLUE FOUND A BLACK HEADBAND AT THE SCENE"

$11 \times 8 - 12 = 76$ (C) · $11 \times 12 - 19 = 113$ (B) · $6 \times 7 - 23 = 19$ (L) · $96 \div 2 \times 6 = 108$ (T) · $9 \times 12 - 24 = 84$ (S) · $11 \times 7 - 19 = 58$ (U) · $22 \div 4 \times 8 = 54$ (H) · $12 \times 10 - 2 = 118$ (E) · $62 \div 3 \times 6 = 80$ (N) · $6 \div 3 \times 6 = 24$ (A) · $10 \times 12 - 8 = 112$ (D) · $7 \times 7 - 12 = 37$ (O) · $8 \div 2 \times 2 = 12$ (F) · $10 \times 3 - 20 = 10$ (K)

Clue 5 (Square roots): surviving statement is box 1 → Lionel

$\sqrt{64} = 8$ · $\sqrt{49} = 7$ · $\sqrt{144} = 12$ · $\sqrt{121} = 11$ · $\sqrt{100} = 10$ · $\sqrt{4} = 2$ · $\sqrt{9} = 3$ · $\sqrt{36} = 6$ · $\sqrt{81} = 9$ · $\sqrt{16} = 4$ · $\sqrt{25} = 5$