



Sabotage on the Championship Court

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

Detective: _____ **Date:** _____

The biggest game of the season is tonight, but someone has stolen the Head Coach's lucky playbook and greased the three-point line! The Metropolitan Arena is in lockdown. We need to analyze the court physics, study the clues, and find the Court Phantom before tip-off.

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 Court Phantom 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	SNEAKER BRAND	WRISTBAND PLACEMENT	HAIR STYLE	DISTRACTION
Nikola	crossover dribble	TurboGlide shoes	left wristband	buzzed hair	squeaky sneakers
Joel	fadeaway jumper	TurboGlide shoes	left wristband	dyed blue hair	loud crowd noise
Devin	slammed dunk	GripMax shoes	left wristband	dyed blue hair	squeaky sneakers
Jayson	crossover dribble	ApexLeap shoes	left wristband	buzzed hair	squeaky sneakers
Luka	no-look pass	TurboGlide shoes	right wristband	tall dreadlocks	loud crowd noise
Giannis	slammed dunk	TurboGlide shoes	right wristband	dyed blue hair	loud crowd noise
Jalen	three-point swish	AeroBounce shoes	left wristband	buzzed hair	squeaky sneakers
Stephen	fadeaway jumper	AeroBounce shoes	left wristband	buzzed hair	squeaky sneakers
Bam	crossover dribble	ApexLeap shoes	left wristband	buzzed hair	blinding camera flash
Domantas	three-point swish	ApexLeap shoes	right wristband	tall dreadlocks	squeaky sneakers
Kawhi	three-point swish	ApexLeap shoes	left wristband	tall dreadlocks	loud crowd noise
Shai	slammed dunk	AeroBounce shoes	left wristband	dyed blue hair	blinding camera flash
DeAaron	crossover dribble	AeroBounce shoes	left wristband	buzzed hair	squeaky sneakers
Ja	crossover dribble	ApexLeap shoes	right wristband	buzzed hair	squeaky sneakers
Jimmy	three-point swish	ApexLeap shoes	left wristband	buzzed hair	loud crowd noise
Anthony	crossover dribble	AeroBounce shoes	left wristband	buzzed hair	blinding camera flash
Kyrie	slammed dunk	AeroBounce shoes	left wristband	dyed blue hair	loud crowd noise
Zion	fadeaway jumper	ShockWave shoes	right wristband	tall dreadlocks	squeaky sneakers
Tyrese	fadeaway jumper	ShockWave shoes	left wristband	dyed blue hair	squeaky sneakers
LeBron	crossover dribble	GripMax shoes	right wristband	dyed blue hair	blinding camera flash
Kevin	no-look pass	AeroBounce shoes	right wristband	dyed blue hair	blinding camera flash

CLUE 1

Pythagorean theorem

To find where the suspect fled, we calculated the direct diagonal pass across the rectangular court.

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

T																T
125	50	37	25	26	39	39	111	26	65	100	123	37	41	65	123	125
				T												
74	37	111	34	125	15	34	116	123	5	39	26	100	37	41	50	123

legs 35 and 120, hypotenuse = → **T**

legs 9 and 12, hypotenuse = → **U**

legs 25 and 60, hypotenuse = → **N**

legs 14 and 48, hypotenuse = → **H**

legs 80 and 84, hypotenuse = → **B**

legs 7 and 24, hypotenuse = → **V**

legs 10 and 24, hypotenuse = → **I**

legs 3 and 4, hypotenuse = → **G**

legs 28 and 96, hypotenuse = → **D**

legs 15 and 36, hypotenuse = → **L**

legs 12 and 35, hypotenuse = → **E**

legs 36 and 105, hypotenuse = → **A**

legs 24 and 70, hypotenuse = → **W**

legs 27 and 120, hypotenuse = → **O**

legs 16 and 30, hypotenuse = → **R**

legs 9 and 40, hypotenuse = → **S**

Scratch space:

CLUE 2 Square roots

The suspect left a mysterious square chalk mark on the floor, and finding its side length revealed the next room code.

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

T								T									
5	23	19	22	12	21	14	5	19	18	4	20	19	12	4	22	12	

			T					T					
13	19	7	5	20	4	25	22	5	21	12	16	17	

$\sqrt{25} = \square \rightarrow$ T	$\sqrt{256} = \square \rightarrow$ N	$\sqrt{529} = \square \rightarrow$ H
$\sqrt{625} = \square \rightarrow$ I	$\sqrt{49} = \square \rightarrow$ F	$\sqrt{441} = \square \rightarrow$ B
$\sqrt{289} = \square \rightarrow$ D	$\sqrt{169} = \square \rightarrow$ L	$\sqrt{324} = \square \rightarrow$ U
$\sqrt{144} = \square \rightarrow$ A	$\sqrt{196} = \square \rightarrow$ O	$\sqrt{361} = \square \rightarrow$ E
$\sqrt{484} = \square \rightarrow$ S	$\sqrt{400} = \square \rightarrow$ W	$\sqrt{16} = \square \rightarrow$ R

Scratch space:

CLUE 3

We analyzed the tournament bracket, which doubled in size every hour, to pinpoint the suspect's exact seat.

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 following values from left to right: 441 (with an orange 'T' above it), 400, 8, 81, 400, 9, 100, 441 (with an orange 'T' above it), 484, 169, 400, 9, 441 (with an orange 'T' above it), 8, and 144. The bottom row contains the following values from left to right: 144, 128, 324, 8, 9, 4, 196, 144, 100, 8, 9, 4, 8, 64, and 144.

$$21^2 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$9^2 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$14^2 = \boxed{} \rightarrow \boxed{\text{Y}}$$

$$12^2 = \boxed{} \rightarrow \boxed{\mathbf{S}}$$

$$13^2 = \boxed{} \rightarrow \boxed{\text{M}}$$

$$2^3 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$20^2 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$22^2 = \boxed{} \rightarrow \boxed{0}$$

$$3^2 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$2^6 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$2^2 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$18^2 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$10^2 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$2^7 = \boxed{} \rightarrow \boxed{\text{Q}}$$

Scratch space:

CLUE 4 Order of operations

The arena scoreboard malfunctioned, requiring us to solve a multi-step stat equation in the correct order to unlock the security log.

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

W															
10	11	94	103	64	119	61	17	7	95	57	119	61	17	103	94
73	64	32	32	11	61	18	57	84	95						

$2 \times 6 - 2 = \square \rightarrow \boxed{W}$

$3 + 5 \times 3 = \square \rightarrow \boxed{H}$

$71 + 6 \times 4 = \square \rightarrow \boxed{R}$

$12 \times 6 - 11 = \square \rightarrow \boxed{D}$

$37 + 4 \times 5 = \square \rightarrow \boxed{A}$

$1 + 2 \times 5 = \square \rightarrow \boxed{E}$

$9 \times 12 - 14 = \square \rightarrow \boxed{F}$

$8 \times 12 - 23 = \square \rightarrow \boxed{B}$

$3 \times 11 - 26 = \square \rightarrow \boxed{T}$

$76 + 2 \times 4 = \square \rightarrow \boxed{I}$

$9 + 2 \times 4 = \square \rightarrow \boxed{S}$

$22 + 2 \times 5 = \square \rightarrow \boxed{Z}$

$11 \times 11 - 18 = \square \rightarrow \boxed{O}$

$12 \times 10 - 1 = \square \rightarrow \boxed{N}$

$11 \times 8 - 24 = \square \rightarrow \boxed{U}$

Scratch space:

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

The emergency exit gate is locked with a keypad that requires the square root of the main court's square area.

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:

$\text{sqrt}(144) = \boxed{}$

$\text{sqrt}(100) = \boxed{}$

$\text{sqrt}(9) = \boxed{}$

$\text{sqrt}(1) = \boxed{}$

$\text{sqrt}(81) = \boxed{}$

$\text{sqrt}(25) = \boxed{}$

$\text{sqrt}(49) = \boxed{}$

$\text{sqrt}(4) = \boxed{}$

$\text{sqrt}(121) = \boxed{}$

$\text{sqrt}(64) = \boxed{}$

$\text{sqrt}(16) = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain performs a flawless crossover dribble, then escapes easily in GripMax shoes.
2. The villain sinks a brilliant fadeaway jumper, then escapes easily in GripMax shoes.
3. The villain scores with a three-point swish, then bolts away in AeroBounce shoes.
4. The villain rattles the rim with a slammed dunk, then bolts away in AeroBounce shoes.
5. The villain performs a flawless crossover dribble, then dashes past the guard in ShockWave shoes.
6. The villain sinks a brilliant fadeaway jumper, then bolts away in AeroBounce shoes.
7. The villain sinks a brilliant fadeaway jumper, then dashes past the guard in ShockWave shoes.
8. The villain scores with a three-point swish, then leaps over the barrier in ApexLeap shoes.
9. The villain rattles the rim with a slammed dunk, then escapes easily in GripMax shoes.
10. The villain performs a flawless crossover dribble, then bolts away in AeroBounce shoes.
11. The villain rattles the rim with a slammed dunk, then speeds off in TurboGlide shoes.
12. The villain performs a flawless crossover dribble, then leaps over the barrier in ApexLeap shoes.

Answer Key

Sabotage on the Championship Court

Culprit: Stephen

fadeaway jumper · AeroBounce shoes · left wristband · buzzed hair · squeaky sneakers

Trail: Start 21 → Clue 1 17 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE VILLAIN DOES NOT WEAR TURBOGLIDE SHOES"

legs 35 and 120, hypotenuse = 125 (T) · legs 9 and 12, hypotenuse = 15 (U) · legs 25 and 60, hypotenuse = 65 (N) · legs 14 and 48, hypotenuse = 50 (H) · legs 80 and 84, hypotenuse = 116 (B) · legs 7 and 24, hypotenuse = 25 (V) · legs 10 and 24, hypotenuse = 26 (I) · legs 3 and 4, hypotenuse = 5 (G) · legs 28 and 96, hypotenuse = 100 (D) · legs 15 and 36, hypotenuse = 39 (L) · legs 12 and 35, hypotenuse = 37 (E) · legs 36 and 105, hypotenuse = 111 (A) · legs 24 and 70, hypotenuse = 74 (W) · legs 27 and 120, hypotenuse = 123 (O) · legs 16 and 30, hypotenuse = 34 (R) · legs 9 and 40, hypotenuse = 41 (S)

Clue 2 (Square roots): "THE SABOTEUR WEARS A LEFT WRISTBAND"

$\sqrt{25} = 5$ (T) · $\sqrt{256} = 16$ (N) · $\sqrt{529} = 23$ (H) · $\sqrt{625} = 25$ (I) · $\sqrt{49} = 7$ (F) · $\sqrt{441} = 21$ (B) · $\sqrt{289} = 17$ (D) · $\sqrt{169} = 13$ (L) · $\sqrt{324} = 18$ (U) · $\sqrt{144} = 12$ (A) · $\sqrt{196} = 14$ (O) · $\sqrt{361} = 19$ (E) · $\sqrt{484} = 22$ (S) · $\sqrt{400} = 20$ (W) · $\sqrt{16} = 4$ (R)

Clue 3 (Exponents): "THE PHANTOM HATES SQUEAKY SNEAKERS"

$21^2 = 441$ (T) · $9^2 = 81$ (P) · $14^2 = 196$ (Y) · $12^2 = 144$ (S) · $13^2 = 169$ (M) · $2^3 = 8$ (E) · $20^2 = 400$ (H) · $22^2 = 484$ (O) · $3^2 = 9$ (A) · $2^6 = 64$ (R) · $2^2 = 4$ (K) · $18^2 = 324$ (U) · $10^2 = 100$ (N) · $2^7 = 128$ (Q)

Clue 4 (Order of operations): "WE FOUND STRANDS OF BUZZED HAIR"

$2 \times 6 - 2 = 10$ (W) · $3 + 5 \times 3 = 18$ (H) · $71 + 6 \times 4 = 95$ (R) · $12 \times 6 - 11 = 61$ (D) · $37 + 4 \times 5 = 57$ (A) · $1 + 2 \times 5 = 11$ (E) · $9 \times 12 - 14 = 94$ (F) · $8 \times 12 - 23 = 73$ (B) · $3 \times 11 - 26 = 7$ (T) · $76 + 2 \times 4 = 84$ (I) · $9 + 2 \times 4 = 17$ (S) · $22 + 2 \times 5 = 32$ (Z) · $11 \times 11 - 18 = 103$ (O) · $12 \times 10 - 1 = 119$ (N) · $11 \times 8 - 24 = 64$ (U)

Clue 5 (Square roots): surviving statement is box 6 → Stephen

$\sqrt{144} = 12$ · $\sqrt{100} = 10$ · $\sqrt{9} = 3$ · $\sqrt{1} = 1$ · $\sqrt{81} = 9$ · $\sqrt{25} = 5$ · $\sqrt{49} = 7$ · $\sqrt{4} = 2$ · $\sqrt{121} = 11$ · $\sqrt{64} = 8$ · $\sqrt{16} = 4$