



The Great Lunar Cup Heist

Grade 10 math · Multiplication, Pythagorean theorem, Square roots, Exponents · Reading level grades 3-4

Detective: _____ Date: _____

The Golden Kitty Cup has been stolen right before the big Space Soccer-Basketball championship! The culprit left a trail of cosmic paw prints across the dusty lunar surface. Grab your gravity boots and help us track down the sneaky feline star who took it!

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 Phantom Striker 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	SPECIAL GEAR	PAW PRINT DIRECTION	SPACE FUR COAT	FELINE FEAR
Steph Purry	Meteor slam dunk	Laser pointer laser	Left-pawed	Neon orange fur	Squeaky toy sound
Son Heung Minow	Meteor slam dunk	Rocket yarn ball	Right-pawed	Cosmic silver fur	Dog hologram
Neymar Mew	Solar flare tackle	Stardust catnip	Left-pawed	Neon orange fur	Cold vacuum draft
Pele Paws	Black hole defense	Rocket yarn ball	Left-pawed	Cosmic silver fur	Squeaky toy sound
Kobe Purryant	Meteor slam dunk	Anti-grav milk jug	Left-pawed	Neon orange fur	Cold vacuum draft
Giannis Antetokitty	Comet warp sprint	Rocket yarn ball	Right-pawed	Starry purple fur	Squeaky toy sound
Yao Mewing	Comet warp sprint	Asteroid scratcher	Right-pawed	Starry purple fur	Cold vacuum draft
Harry Kittycane	Solar flare tackle	Stardust catnip	Right-pawed	Cosmic silver fur	Cold vacuum draft
LeBron Claws	Solar flare tackle	Asteroid scratcher	Left-pawed	Neon orange fur	Cold vacuum draft
Shaquille Onealcat	Meteor slam dunk	Laser pointer laser	Left-pawed	Starry purple fur	Cold vacuum draft
Lionel Meossi	Black hole defense	Stardust catnip	Right-pawed	Starry purple fur	Dog hologram
Miawo Hamm	Black hole defense	Stardust catnip	Left-pawed	Starry purple fur	Squeaky toy sound
Alex Morgancat	Meteor slam dunk	Rocket yarn ball	Right-pawed	Neon orange fur	Cold vacuum draft
Megan Rapinoeclaw	Super-gravity bounce	Laser pointer laser	Right-pawed	Cosmic silver fur	Dog hologram
Serena Purrrwilliams	Black hole defense	Rocket yarn ball	Right-pawed	Starry purple fur	Cold vacuum draft
Kevin Durat	Black hole defense	Laser pointer laser	Right-pawed	Cosmic silver fur	Squeaky toy sound
Zinedine Zicat	Super-gravity bounce	Laser pointer laser	Left-pawed	Neon orange fur	Cold vacuum draft
Dirk Nowitzkitty	Comet warp sprint	Stardust catnip	Right-pawed	Cosmic silver fur	Dog hologram
Luka Doncat	Black hole defense	Rocket yarn ball	Left-pawed	Neon orange fur	Squeaky toy sound
Michael Pawdan	Super-gravity bounce	Stardust catnip	Left-pawed	Neon orange fur	Cold vacuum draft
Magic Clawson	Super-gravity bounce	Stardust catnip	Left-pawed	Cosmic silver fur	Dog hologram

CLUE 1
Multiplication facts (1-12)

We found rows of space soccer balls sitting in the hangar. If we count how many are in each rack, we can unlock the security terminal.

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

T			T											T					
6	21	9	6	21	72	9	70	120	100	9	8	15	100	6	84	8	9		
T					T									T					
6	21	9	22	8	6	9	60	100	72	120	8	66	60	22	6	66	21	9	60

$6 \times 1 = \square \rightarrow$ T	$3 \times 5 = \square \rightarrow$ N	$3 \times 3 = \square \rightarrow$ E	$10 \times 7 = \square \rightarrow$ F
$2 \times 11 = \square \rightarrow$ A	$6 \times 12 = \square \rightarrow$ I	$10 \times 12 = \square \rightarrow$ D	
$3 \times 7 = \square \rightarrow$ H	$10 \times 10 = \square \rightarrow$ O	$8 \times 1 = \square \rightarrow$ S	
$12 \times 5 = \square \rightarrow$ R	$12 \times 7 = \square \rightarrow$ U	$11 \times 6 = \square \rightarrow$ C	

Scratch space:

CLUE 2
Pythagorean theorem

The thief sprinted diagonally across the basketball court. We need to find the shortest path from the corner to the hoop to intercept them.

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

T										T								
68	40	29	65	51	65	58	29	30	68	50	37	41	58	58	29	50	34	
			T															
5	29	39	68	58	34	87	58	37	111	100	68							

legs 32 and 60, hypotenuse = → **T**

legs 9 and 40, hypotenuse = → **O**

legs 20 and 21, hypotenuse = → **E**

legs 12 and 35, hypotenuse = → **R**

legs 40 and 42, hypotenuse = → **P**

legs 14 and 48, hypotenuse = → **D**

legs 16 and 30, hypotenuse = → **A**

legs 25 and 60, hypotenuse = → **S**

legs 24 and 32, hypotenuse = → **H**

legs 36 and 105, hypotenuse = → **I**

legs 24 and 45, hypotenuse = → **U**

legs 15 and 36, hypotenuse = → **F**

legs 3 and 4, hypotenuse = → **L**

legs 60 and 63, hypotenuse = → **W**

legs 28 and 96, hypotenuse = → **N**

legs 18 and 24, hypotenuse = → **C**

Scratch space:

CLUE 3 Square roots

The rocket ship was parked in a perfectly square launchpad. By finding the length of one side of the pad, we can figure out the ship size.

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

A						A							A			
22	11	17	16	5	20	22	11	10	10	12	5	7	22	13	6	
		A											A			
25	11	22	16	8	5	6	9	8	11	7	15	12	15	24	22	16

$\text{sqrt}(484) = \square \rightarrow \text{A}$	$\text{sqrt}(36) = \square \rightarrow \text{T}$	$\text{sqrt}(25) = \square \rightarrow \text{D}$
$\text{sqrt}(625) = \square \rightarrow \text{S}$	$\text{sqrt}(49) = \square \rightarrow \text{R}$	$\text{sqrt}(169) = \square \rightarrow \text{F}$
$\text{sqrt}(225) = \square \rightarrow \text{I}$	$\text{sqrt}(256) = \square \rightarrow \text{L}$	$\text{sqrt}(400) = \square \rightarrow \text{V}$
$\text{sqrt}(289) = \square \rightarrow \text{O}$	$\text{sqrt}(121) = \square \rightarrow \text{C}$	$\text{sqrt}(100) = \square \rightarrow \text{U}$
$\text{sqrt}(576) = \square \rightarrow \text{N}$	$\text{sqrt}(144) = \square \rightarrow \text{M}$	$\text{sqrt}(64) = \square \rightarrow \text{E}$
$\text{sqrt}(81) = \square \rightarrow \text{H}$		

Scratch space:

CLUE 4 Exponents

The radar signals are multiplying fast as the thief flees. Solving how fast the power levels grow will give us the exact flight coordinate.

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

W																
225	27	400	625	512	729	25	729	27	625	729	625	484	125	729	32	27
400	512	484	625	729	256	16	27	32	625	125	100					

$15^2 = \square \rightarrow \text{W}$	$20^2 = \square \rightarrow \text{F}$	$4^2 = \square \rightarrow \text{H}$	$22^2 = \square \rightarrow \text{R}$
$3^3 = \square \rightarrow \text{E}$	$5^2 = \square \rightarrow \text{D}$	$2^9 = \square \rightarrow \text{U}$	$2^5 = \square \rightarrow \text{G}$
$5^3 = \square \rightarrow \text{A}$	$4^4 = \square \rightarrow \text{T}$	$5^4 = \square \rightarrow \text{O}$	$9^3 = \square \rightarrow \text{N}$
$10^2 = \square \rightarrow \text{L}$			

Scratch space:

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

To open the escape hatch, we must calculate the width of the square control room floor. Let us find the side length from the total 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:

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

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

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

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

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

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

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

$\text{sqrt}(36) = \boxed{}$

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

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

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

Step 2 - cross out the sentence with each answer:

1. The villain executed meteor slam dunk, then dropped an anti-grav milk jug.
2. The villain unleashed solar flare tackle, then swiped an asteroid scratcher.
3. The villain activated super-gravity bounce, then fired a laser pointer laser.
4. The villain summoned black hole defense, then swiped an asteroid scratcher.
5. The villain unleashed solar flare tackle, then sprinkled stardust catnip.
6. The villain unleashed solar flare tackle, then fired a laser pointer laser.
7. The villain activated super-gravity bounce, then tossed a rocket yarn ball.
8. The villain activated super-gravity bounce, then sprinkled stardust catnip.
9. The villain powered comet warp sprint, then tossed a rocket yarn ball.
10. The villain activated super-gravity bounce, then dropped an anti-grav milk jug.
11. The villain unleashed solar flare tackle, then tossed a rocket yarn ball.
12. The villain executed meteor slam dunk, then sprinkled stardust catnip.

Answer Key

The Great Lunar Cup Heist

Culprit: Kobe Purryant

Meteor slam dunk · Anti-grav milk jug · Left-pawed · Neon orange fur · Cold vacuum draft

Trail: Start 21 → Clue 1 19 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE THIEF DOES NOT USE THE ASTEROID SCRATCHER"

$6 \times 1 = 6$ (T) · $3 \times 5 = 15$ (N) · $3 \times 3 = 9$ (E) · $10 \times 7 = 70$ (F) · $2 \times 11 = 22$ (A) · $6 \times 12 = 72$ (I) · $10 \times 12 = 120$ (D) · $3 \times 7 = 21$ (H) · $10 \times 10 = 100$ (O) · $8 \times 1 = 8$ (S) · $12 \times 5 = 60$ (R) · $12 \times 7 = 84$ (U) · $11 \times 6 = 66$ (C)

Clue 2 (Pythagorean theorem): "THE SUSPECT DROPPED A LEFT PAW PRINT"

legs 32 and 60, hypotenuse = 68 (T) · legs 9 and 40, hypotenuse = 41 (O) · legs 20 and 21, hypotenuse = 29 (E) · legs 12 and 35, hypotenuse = 37 (R) · legs 40 and 42, hypotenuse = 58 (P) · legs 14 and 48, hypotenuse = 50 (D) · legs 16 and 30, hypotenuse = 34 (A) · legs 25 and 60, hypotenuse = 65 (S) · legs 24 and 32, hypotenuse = 40 (H) · legs 36 and 105, hypotenuse = 111 (I) · legs 24 and 45, hypotenuse = 51 (U) · legs 15 and 36, hypotenuse = 39 (F) · legs 3 and 4, hypotenuse = 5 (L) · legs 60 and 63, hypotenuse = 87 (W) · legs 28 and 96, hypotenuse = 100 (N) · legs 18 and 24, hypotenuse = 30 (C)

Clue 3 (Square roots): "A COLD VACUUM DRAFT SCALED THE CRIMINAL"

$\sqrt{484} = 22$ (A) · $\sqrt{36} = 6$ (T) · $\sqrt{25} = 5$ (D) · $\sqrt{625} = 25$ (S) · $\sqrt{49} = 7$ (R) · $\sqrt{169} = 13$ (F) · $\sqrt{225} = 15$ (I) · $\sqrt{256} = 16$ (L) · $\sqrt{400} = 20$ (V) · $\sqrt{289} = 17$ (O) · $\sqrt{121} = 11$ (C) · $\sqrt{100} = 10$ (U) · $\sqrt{576} = 24$ (N) · $\sqrt{144} = 12$ (M) · $\sqrt{64} = 8$ (E) · $\sqrt{81} = 9$ (H)

Clue 4 (Exponents): "WE FOUND NEON ORANGE FUR ON THE GOAL"

$15^2 = 225$ (W) · $20^2 = 400$ (F) · $4^2 = 16$ (H) · $22^2 = 484$ (R) · $3^3 = 27$ (E) · $5^2 = 25$ (D) · $2^9 = 512$ (U) · $2^5 = 32$ (G) · $5^3 = 125$ (A) · $4^4 = 256$ (T) · $5^4 = 625$ (O) · $9^3 = 729$ (N) · $10^2 = 100$ (L)

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

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