



Sabotage at the Grand Prix

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

Detective: _____ **Date:** _____

Moments before the championship final at Velocity International Speedway, someone tampered with the leader's car telemetry. As the chief pit investigator, you must analyze track evidence and decode the clues to catch the culprit before the green flag drops.

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 Track Saboteur is _____

Possible suspects

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

NAME	ENGINE TYPE	TECH UPGRADE	STEERING GRIP	SUIT STRIPES	CAR FLAW
Sergio Perez	Twin Electric Motor	DRS Wing Boost	Left Hand Lead	Neon Blue Stripes	Spinout On Sharp Turns
Oscar Piastri	Hybrid Rotary Engine	Slick Tire Compound	Right Hand Lead	Neon Blue Stripes	Late Braking Lockup
Lance Stroll	Supercharged V6 Engine	Active Suspension	Left Hand Lead	Crimson Red Stripes	Spinout On Sharp Turns
Valtteri Bottas	Turbo V8 Engine	Active Suspension	Right Hand Lead	Neon Blue Stripes	Late Braking Lockup
Logan Sargeant	Hybrid Rotary Engine	Active Suspension	Left Hand Lead	Crimson Red Stripes	Overheating Oil Tank
Zhou Guanyu	Nitro V10 Engine	DRS Wing Boost	Left Hand Lead	Emerald Green Stripes	Overheating Oil Tank
Esteban Ocon	Hybrid Rotary Engine	Hydroplane Skids	Right Hand Lead	Neon Blue Stripes	Spinout On Sharp Turns
Fernando Alonso	Supercharged V6 Engine	Hydroplane Skids	Right Hand Lead	Neon Blue Stripes	Spinout On Sharp Turns
Liam Lawson	Turbo V8 Engine	Ceramic Brakes	Right Hand Lead	Crimson Red Stripes	Late Braking Lockup
Charles Leclerc	Turbo V8 Engine	Ceramic Brakes	Right Hand Lead	Neon Blue Stripes	Late Braking Lockup
Carlos Sainz	Turbo V8 Engine	DRS Wing Boost	Right Hand Lead	Emerald Green Stripes	Spinout On Sharp Turns
Nyck de Vries	Twin Electric Motor	Slick Tire Compound	Left Hand Lead	Neon Blue Stripes	Late Braking Lockup
Lewis Hamilton	Hybrid Rotary Engine	Hydroplane Skids	Right Hand Lead	Emerald Green Stripes	Late Braking Lockup
Mick Schumacher	Supercharged V6 Engine	Hydroplane Skids	Left Hand Lead	Emerald Green Stripes	Spinout On Sharp Turns
Oliver Bearman	Supercharged V6 Engine	DRS Wing Boost	Right Hand Lead	Neon Blue Stripes	Late Braking Lockup
Yuki Tsunoda	Supercharged V6 Engine	Ceramic Brakes	Right Hand Lead	Crimson Red Stripes	Late Braking Lockup
Alexander Albon	Nitro V10 Engine	Hydroplane Skids	Left Hand Lead	Neon Blue Stripes	Spinout On Sharp Turns
Nico Hulkenberg	Hybrid Rotary Engine	Active Suspension	Right Hand Lead	Crimson Red Stripes	Overheating Oil Tank
Pierre Gasly	Nitro V10 Engine	Slick Tire Compound	Right Hand Lead	Neon Blue Stripes	Late Braking Lockup
George Russell	Nitro V10 Engine	Ceramic Brakes	Right Hand Lead	Crimson Red Stripes	Late Braking Lockup
Kevin Magnussen	Supercharged V6 Engine	Active Suspension	Left Hand Lead	Emerald Green Stripes	Late Braking Lockup

CLUE 1

Pythagorean theorem

To figure out the direct diagonal shortcut across the track layout, calculate the hypotenuse using the two side lengths.

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

T							T											T
87	85	30	74	100	34	116	87	30	17	20	29	26	29	68	116	87		
																T		
17	74	30	29	20	74	25	26	68	39	34	116	116	74	87				

legs 60 and 63, hypotenuse = → **T**

legs 24 and 70, hypotenuse = → **S**

legs 8 and 15, hypotenuse = → **U**

legs 28 and 96, hypotenuse = → **A**

legs 16 and 30, hypotenuse = → **B**

legs 10 and 24, hypotenuse = → **I**

legs 15 and 20, hypotenuse = → **W**

legs 20 and 21, hypotenuse = → **D**

legs 12 and 16, hypotenuse = → **R**

legs 15 and 36, hypotenuse = → **G**

legs 32 and 60, hypotenuse = → **N**

legs 80 and 84, hypotenuse = → **O**

legs 40 and 75, hypotenuse = → **H**

legs 18 and 24, hypotenuse = → **E**

Scratch space:

CLUE 2 Square roots

The track telemetry board measures grip area in square units; find the side length by taking the square root.

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

T						T													T
11	14	18	14	16	14	11	6	24	25	23	15	2	25	19	6	3	5	23	11
											T								
23	19	10	4	18	14	19	4	15	10	11	23	14	2	23	14	14	18		

$\text{sqrt}(121) = \square \rightarrow \boxed{\text{T}}$	$\text{sqrt}(576) = \square \rightarrow \boxed{\text{Y}}$	$\text{sqrt}(16) = \square \rightarrow \boxed{\text{D}}$
$\text{sqrt}(529) = \square \rightarrow \boxed{\text{H}}$	$\text{sqrt}(25) = \square \rightarrow \boxed{\text{G}}$	$\text{sqrt}(361) = \square \rightarrow \boxed{\text{A}}$
$\text{sqrt}(625) = \square \rightarrow \boxed{\text{S}}$	$\text{sqrt}(225) = \square \rightarrow \boxed{\text{O}}$	$\text{sqrt}(256) = \square \rightarrow \boxed{\text{M}}$
$\text{sqrt}(4) = \square \rightarrow \boxed{\text{W}}$	$\text{sqrt}(36) = \square \rightarrow \boxed{\text{R}}$	$\text{sqrt}(196) = \square \rightarrow \boxed{\text{E}}$
$\text{sqrt}(100) = \square \rightarrow \boxed{\text{N}}$	$\text{sqrt}(324) = \square \rightarrow \boxed{\text{L}}$	$\text{sqrt}(9) = \square \rightarrow \boxed{\text{I}}$

Scratch space:

CLUE 3 Exponents

Engine output multiplies exponentially with every turbo cycle; calculate the final power level using exponent rules.

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

D																
27	128	9	225	169	256	9	121	49	9	324	243	324	256	8	256	
8	256	225	324	625	9	256	121	128	512	289	8	4	441	121	32	25

$3^3 = \square \rightarrow$ D	$2^2 = \square \rightarrow$ O	$13^2 = \square \rightarrow$ M	$3^2 = \square \rightarrow$ R
$18^2 = \square \rightarrow$ E	$5^2 = \square \rightarrow$ P	$11^2 = \square \rightarrow$ K	$15^2 = \square \rightarrow$ T
$2^7 = \square \rightarrow$ I	$8^3 = \square \rightarrow$ N	$17^2 = \square \rightarrow$ G	$16^2 = \square \rightarrow$ A
$5^4 = \square \rightarrow$ B	$2^5 = \square \rightarrow$ U	$7^2 = \square \rightarrow$ S	$2^3 = \square \rightarrow$ L
$21^2 = \square \rightarrow$ C	$3^5 = \square \rightarrow$ V		

Scratch space:

CLUE 4
Order of operations

The pit wall telemetry computer runs a multi-step formula for lap speed; follow PEMDAS to solve it.

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

H							H											
87	107	90	73	107	29	27	87	21	32	55	27	28	107	21	29	108	32	107
67	107	117	67	74	90	108	107	27	29	32	34	93	107	27				

$12 \times 9 - 21 = \square \rightarrow \text{H}$

$11 \times 10 - 17 = \square \rightarrow \text{P}$

$13 + 2 \times 4 = \square \rightarrow \text{A}$

$11 + 2 \times 8 = \square \rightarrow \text{S}$

$6 \times 10 - 5 = \square \rightarrow \text{D}$

$14 + 9 \times 2 = \square \rightarrow \text{R}$

$12 \times 5 - 26 = \square \rightarrow \text{I}$

$7 \times 5 - 7 = \square \rightarrow \text{F}$

$12 \times 10 - 12 = \square \rightarrow \text{U}$

$9 \times 9 - 14 = \square \rightarrow \text{N}$

$17 + 6 \times 2 = \square \rightarrow \text{T}$

$51 + 8 \times 7 = \square \rightarrow \text{E}$

$11 \times 7 - 4 = \square \rightarrow \text{M}$

$50 + 4 \times 6 = \square \rightarrow \text{B}$

$48 + 6 \times 7 = \square \rightarrow \text{L}$

$12 \times 12 - 27 = \square \rightarrow \text{O}$

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

The pit chief needs to divide the total remaining race fuel equally among the support crew rigs.

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:

$70 \div 7 = \boxed{}$

$63 \div 7 = \boxed{}$

$84 \div 7 = \boxed{}$

$60 \div 10 = \boxed{}$

$16 \div 2 = \boxed{}$

$2 \div 1 = \boxed{}$

$14 \div 2 = \boxed{}$

$28 \div 7 = \boxed{}$

$77 \div 7 = \boxed{}$

$27 \div 9 = \boxed{}$

$7 \div 7 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain spun up the hybrid rotary engine, then deployed the drs wing boost.
2. The villain fired up the supercharged v6 engine, then fitted the slick tire compound.
3. The villain engaged the twin electric motor, then tested the ceramic brakes.
4. The villain primed the nitro v10 engine, then deployed the drs wing boost.
5. The villain primed the nitro v10 engine, then fitted the slick tire compound.
6. The villain primed the nitro v10 engine, then tested the ceramic brakes.
7. The villain engaged the twin electric motor, then activated the hydroplane skids.
8. The villain spun up the hybrid rotary engine, then tested the ceramic brakes.
9. The villain revved the turbo v8 engine, then tested the ceramic brakes.
10. The villain spun up the hybrid rotary engine, then fitted the slick tire compound.
11. The villain engaged the twin electric motor, then calibrated the active suspension.
12. The villain revved the turbo v8 engine, then calibrated the active suspension.

Answer Key

Sabotage at the Grand Prix

Culprit: Pierre Gasly

Nitro V10 Engine · Slick Tire Compound · Right Hand Lead · Neon Blue Stripes · Late Braking Lockup

Trail: Start 21 → Clue 1 17 → Clue 2 11 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE SABOTEUR DID NOT USE DRS WING BOOST"

legs 60 and 63, hypotenuse = 87 (T) · legs 24 and 70, hypotenuse = 74 (S) · legs 8 and 15, hypotenuse = 17 (U) · legs 28 and 96, hypotenuse = 100 (A) · legs 16 and 30, hypotenuse = 34 (B) · legs 10 and 24, hypotenuse = 26 (I) · legs 15 and 20, hypotenuse = 25 (W) · legs 20 and 21, hypotenuse = 29 (D) · legs 12 and 16, hypotenuse = 20 (R) · legs 15 and 36, hypotenuse = 39 (G) · legs 32 and 60, hypotenuse = 68 (N) · legs 80 and 84, hypotenuse = 116 (O) · legs 40 and 75, hypotenuse = 85 (H) · legs 18 and 24, hypotenuse = 30 (E)

Clue 2 (Square roots): "TELEMETRY SHOWS A RIGHT HAND LEAD ON THE WHEEL"

$\sqrt{121} = 11$ (T) · $\sqrt{576} = 24$ (Y) · $\sqrt{16} = 4$ (D) · $\sqrt{529} = 23$ (H) · $\sqrt{25} = 5$ (G) · $\sqrt{361} = 19$ (A) · $\sqrt{625} = 25$ (S) · $\sqrt{225} = 15$ (O) · $\sqrt{256} = 16$ (M) · $\sqrt{4} = 2$ (W) · $\sqrt{36} = 6$ (R) · $\sqrt{196} = 14$ (E) · $\sqrt{100} = 10$ (N) · $\sqrt{324} = 18$ (L) · $\sqrt{9} = 3$ (I)

Clue 3 (Exponents): "DIRT MARKS REVEAL A LATE BRAKING LOCKUP"

$3^3 = 27$ (D) · $2^2 = 4$ (O) · $13^2 = 169$ (M) · $3^2 = 9$ (R) · $18^2 = 324$ (E) · $5^2 = 25$ (P) · $11^2 = 121$ (K) · $15^2 = 225$ (T) · $2^7 = 128$ (I) · $8^3 = 512$ (N) · $17^2 = 289$ (G) · $16^2 = 256$ (A) · $5^4 = 625$ (B) · $2^5 = 32$ (U) · $7^2 = 49$ (S) · $2^3 = 8$ (L) · $21^2 = 441$ (C) · $3^5 = 243$ (V)

Clue 4 (Order of operations): "HELMET SHARDS FEATURE NEON BLUE STRIPES"

$12 \times 9 - 21 = 87$ (H) · $11 \times 10 - 17 = 93$ (P) · $13 + 2 \times 4 = 21$ (A) · $11 + 2 \times 8 = 27$ (S) · $6 \times 10 - 5 = 55$ (D) · $14 + 9 \times 2 = 32$ (R) · $12 \times 5 - 26 = 34$ (I) · $7 \times 5 - 7 = 28$ (F) · $12 \times 10 - 12 = 108$ (U) · $9 \times 9 - 14 = 67$ (N) · $17 + 6 \times 2 = 29$ (T) · $51 + 8 \times 7 = 107$ (E) · $11 \times 7 - 4 = 73$ (M) · $50 + 4 \times 6 = 74$ (B) · $48 + 6 \times 7 = 90$ (L) · $12 \times 12 - 27 = 117$ (O)

Clue 5 (Division facts (1-12)): surviving statement is box 5 → Pierre Gasly

$70 \div 7 = 10$ · $63 \div 7 = 9$ · $84 \div 7 = 12$ · $60 \div 10 = 6$ · $16 \div 2 = 8$ · $2 \div 1 = 2$ · $14 \div 2 = 7$ · $28 \div 7 = 4$ · $77 \div 7 = 11$ · $27 \div 9 = 3$ · $7 \div 7 = 1$