



The Case of the Missing Glow Serum

Grade 6 math · Addition, Subtraction, Word problems, Percentages, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

A devious rogue chemist has broken into the sterile lab vault and stolen the legendary glowing youth formula! The Glow Laboratory is in total panic. It is up to you to analyze the residue, check the security logs, and identify the thief before the glowing formula is lost forever.

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 Serum Thief is _____

Possible suspects

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

NAME	ACTIVE INGREDIENT	LAB EQUIPMENT	SAFETY WEAR	HAIRSTYLE	VULNERABILITY
Kate Somerville	retinol booster	digital pH meter	wears silver safety goggles	sleek high ponytail	ruined by bright sunlight
Estee Lauder	retinol booster	microfluidic mixer	wears silver safety goggles	neat space buns	ruined by extreme cold
Kim Kardashian	vitamin c serum	ultrasonic spatula	wears gold safety goggles	neat space buns	ruined by extreme cold
Rihanna Fenty	niacinamide	centrifuge spinner	wears silver safety goggles	sleek high ponytail	ruined by extreme cold
Charlotte Tilbury	retinol booster	centrifuge spinner	wears gold safety goggles	bright neon green hair	ruined by heavy steam
Kylie Jenner	niacinamide	ultrasonic spatula	wears gold safety goggles	neat space buns	ruined by bright sunlight
Hiram Yarbro	vitamin c serum	ultrasonic spatula	wears silver safety goggles	neat space buns	ruined by heavy steam
Joanna Vargas	salicylic acid	centrifuge spinner	wears gold safety goggles	sleek high ponytail	ruined by bright sunlight
Anjali Mahto	salicylic acid	digital pH meter	wears silver safety goggles	sleek high ponytail	ruined by bright sunlight
Dennis Gross	retinol booster	ultrasonic spatula	wears silver safety goggles	sleek high ponytail	ruined by bright sunlight
Gwyneth Paltrow	niacinamide	digital pH meter	wears silver safety goggles	sleek high ponytail	ruined by heavy steam
Huda Kattan	hyaluronic acid	centrifuge spinner	wears gold safety goggles	neat space buns	ruined by bright sunlight
Liah Yoo	niacinamide	ultraviolet sterilizer	wears silver safety goggles	sleek high ponytail	ruined by bright sunlight
Cassandra Bankson	retinol booster	ultrasonic spatula	wears silver safety goggles	bright neon green hair	ruined by extreme cold
Sunday Riley	retinol booster	microfluidic mixer	wears silver safety goggles	sleek high ponytail	ruined by heavy steam
Tata Harper	vitamin c serum	centrifuge spinner	wears gold safety goggles	neat space buns	ruined by bright sunlight
James Welsh	vitamin c serum	microfluidic mixer	wears gold safety goggles	sleek high ponytail	ruined by bright sunlight
Susan Yara	retinol booster	ultraviolet sterilizer	wears silver safety goggles	sleek high ponytail	ruined by heavy steam
Andrea Suarez	hyaluronic acid	microfluidic mixer	wears silver safety goggles	bright neon green hair	ruined by heavy steam
Jen Atkin	niacinamide	digital pH meter	wears silver safety goggles	bright neon green hair	ruined by bright sunlight
Miranda Kerr	vitamin c serum	microfluidic mixer	wears silver safety goggles	sleek high ponytail	ruined by bright sunlight

CLUE 1 Addition

The chemist counts the ruined sunscreen bottles in the lab bins. Add the morning batch to the afternoon batch to find the total broken bottles.

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

T 5298	3625	6443	T 5298	3625	3530	6443	5923	4117	7437	6443	8922	6027	7437	T 5298	6142	8922	6443		
T 5298	3625	6443	6142	9803	T 5298	3921	7367	8922	7437	6027	3530	9186	8922	8341	7367	T 5298	6142	9803	7367

$2252 + 3046 = \square \rightarrow \text{T}$	$2946 + 3497 = \square \rightarrow \text{E}$	$4420 + 5383 = \square \rightarrow \text{L}$
$2448 + 1473 = \square \rightarrow \text{R}$	$3016 + 2907 = \square \rightarrow \text{F}$	$3278 + 5908 = \square \rightarrow \text{C}$
$1421 + 2696 = \square \rightarrow \text{D}$	$2463 + 3564 = \square \rightarrow \text{N}$	$2255 + 1275 = \square \rightarrow \text{I}$
$1888 + 1737 = \square \rightarrow \text{H}$	$5503 + 3419 = \square \rightarrow \text{S}$	$3551 + 3816 = \square \rightarrow \text{A}$
$5051 + 2386 = \square \rightarrow \text{O}$	$2276 + 3866 = \square \rightarrow \text{U}$	$2842 + 5499 = \square \rightarrow \text{P}$

Scratch space:

CLUE 2

Subtraction

To measure the pure moisturizer left in the main tank, subtract the spilled gallons from the starting volume.

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

S							S														S
7025	4635	8012	8974	6258	2947		7025	4460	4984	6258	7782	3297		3273	2399	3273	3273	8012	6258	7025	
													S								
7785	6258	2947	6258				4984	2399	2364	2785	4816		4635	2785	7025	4635	4816	6258			

$7402 - 377 = \square \rightarrow \boxed{\text{S}}$

$7655 - 3195 = \square \rightarrow \boxed{\text{A}}$

$7605 - 2621 = \square \rightarrow \boxed{\text{F}}$

$10866 - 3081 = \square \rightarrow \boxed{\text{W}}$

$7124 - 4760 = \square \rightarrow \boxed{\text{U}}$

$7198 - 4251 = \square \rightarrow \boxed{\text{R}}$

$8206 - 424 = \square \rightarrow \boxed{\text{T}}$

$8813 - 3997 = \square \rightarrow \boxed{\text{D}}$

$7709 - 1451 = \square \rightarrow \boxed{\text{E}}$

$6084 - 3685 = \square \rightarrow \boxed{\text{O}}$

$9587 - 1575 = \square \rightarrow \boxed{\text{L}}$

$11668 - 2694 = \square \rightarrow \boxed{\text{V}}$

$5573 - 938 = \square \rightarrow \boxed{\text{I}}$

$3733 - 948 = \square \rightarrow \boxed{\text{N}}$

$4473 - 1176 = \square \rightarrow \boxed{\text{Y}}$

$7179 - 3906 = \square \rightarrow \boxed{\text{G}}$

Scratch space:

CLUE 3

Word problems

A custom order requires several mini skincare kits. Solve this word problem about the face wash and toner ratios to unlock the secure drawer.

Solve each problem, then write its letter in the boxes to fill in the missing word.

Someone scared the villain off with

R							Y		R		G	H	T	S			L		G	H	T
96	60	66	104	79	62	33		33	96	66					60	104		66			

Skincare specialist found 34 dropper bottles yesterday and 62 more today. How many dropper bottles in all?

Answer: → **R**

There were 100 sheet masks. 38 were used up. How many sheet masks are left?

Answer: → **D**

Skincare specialist lined up 11 rows of 6 dropper bottles. How many dropper bottles in all?

Answer: → **I**

There were 113 sunscreen tubes. 9 were used up. How many sunscreen tubes are left?

Answer: → **N**

Skincare specialist found 22 sheet masks yesterday and 57 more today. How many sheet masks in all?

Answer: → **E**

Skincare specialist found 25 sunscreen tubes yesterday and 8 more today. How many sunscreen tubes in all?

Answer: → **B**

Skincare specialist lined up 12 rows of 5 dropper bottles. How many dropper bottles in all?

Answer: → **U**

Scratch space:

CLUE 4 Percentages

The thief altered the active concentration of the glowing facial serum. Find the percentage of vitamin C in the sample to isolate the bad mixture.

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

A		A									A							
43	2	43	11	23	10	11	22	44	1	23	43	33	21	22	22	45		
									A			A						
2	11	38	2	3	1	28	31	10	43	11	21	27	43	33	21	22	44	10

$10\% \text{ of } 430 = \square \rightarrow \text{A}$

$10\% \text{ of } 10 = \square \rightarrow \text{O}$

$10\% \text{ of } 220 = \square \rightarrow \text{E}$

$10\% \text{ of } 440 = \square \rightarrow \text{F}$

$10\% \text{ of } 330 = \square \rightarrow \text{S}$

$50\% \text{ of } 54 = \square \rightarrow \text{W}$

$5\% \text{ of } 200 = \square \rightarrow \text{T}$

$40\% \text{ of } 5 = \square \rightarrow \text{H}$

$10\% \text{ of } 230 = \square \rightarrow \text{R}$

$40\% \text{ of } 95 = \square \rightarrow \text{G}$

$50\% \text{ of } 56 = \square \rightarrow \text{N}$

$20\% \text{ of } 155 = \square \rightarrow \text{Y}$

$25\% \text{ of } 180 = \square \rightarrow \text{K}$

$10\% \text{ of } 110 = \square \rightarrow \text{I}$

$75\% \text{ of } 28 = \square \rightarrow \text{L}$

$50\% \text{ of } 6 = \square \rightarrow \text{P}$

Scratch space:

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

We must divide the remaining rescue cream evenly among the damaged test tubes to clean the workstation.

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:

$99 \div 9 = \boxed{}$

$9 \div 1 = \boxed{}$

$44 \div 11 = \boxed{}$

$6 \div 3 = \boxed{}$

$30 \div 6 = \boxed{}$

$54 \div 9 = \boxed{}$

$30 \div 3 = \boxed{}$

$16 \div 2 = \boxed{}$

$28 \div 4 = \boxed{}$

$12 \div 1 = \boxed{}$

$15 \div 5 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain drips the golden vitamin c serum, then clogs the microfluidic mixer.
2. The villain pours the silky niacinamide, then steals the ultrasonic spatula.
3. The villain drips the golden vitamin c serum, then steals the ultrasonic spatula.
4. The villain applies the smooth retinol booster, then recalibrates the digital pH meter.
5. The villain sprays the salicylic acid mist, then unbalances the centrifuge spinner.
6. The villain drips the golden vitamin c serum, then unbalances the centrifuge spinner.
7. The villain drips the golden vitamin c serum, then sabotages the ultraviolet sterilizer.
8. The villain applies the smooth retinol booster, then clogs the microfluidic mixer.
9. The villain pours the silky niacinamide, then sabotages the ultraviolet sterilizer.
10. The villain pours the silky niacinamide, then clogs the microfluidic mixer.
11. The villain sprays the salicylic acid mist, then recalibrates the digital pH meter.
12. The villain splashes the glowing hyaluronic acid, then unbalances the centrifuge spinner.

Answer Key

The Case of the Missing Glow Serum

Culprit: Miranda Kerr

vitamin c serum · microfluidic mixer · wears silver safety goggles · sleek high ponytail · ruined by bright sunlight

Trail: Start 21 → Clue 1 16 → Clue 2 11 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Addition): "THE THIEF DOES NOT USE THE ULTRASONIC SPATULA"

$2252 + 3046 = 5298$ (T) · $2946 + 3497 = 6443$ (E) · $4420 + 5383 = 9803$ (L) · $2448 + 1473 = 3921$ (R) · $3016 + 2907 = 5923$ (F) · $3278 + 5908 = 9186$ (C) · $1421 + 2696 = 4117$ (D) · $2463 + 3564 = 6027$ (N) · $2255 + 1275 = 3530$ (I) · $1888 + 1737 = 3625$ (H) · $5503 + 3419 = 8922$ (S) · $3551 + 3816 = 7367$ (A) · $5051 + 2386 = 7437$ (O) · $2276 + 3866 = 6142$ (U) · $2842 + 5499 = 8341$ (P)

Clue 2 (Subtraction): "SILVER SAFETY GOGGLES WERE FOUND INSIDE"

$7402 - 377 = 7025$ (S) · $7655 - 3195 = 4460$ (A) · $7605 - 2621 = 4984$ (F) · $10866 - 3081 = 7785$ (W) · $7124 - 4760 = 2364$ (U) · $7198 - 4251 = 2947$ (R) · $8206 - 424 = 7782$ (T) · $8813 - 3997 = 4816$ (D) · $7709 - 1451 = 6258$ (E) · $6084 - 3685 = 2399$ (O) · $9587 - 1575 = 8012$ (L) · $11668 - 2694 = 8974$ (V) · $5573 - 938 = 4635$ (I) · $3733 - 948 = 2785$ (N) · $4473 - 1176 = 3297$ (Y) · $7179 - 3906 = 3273$ (G)

Clue 3 (Word problems): "RUINED BY BRIGHT SUNLIGHT"

Skincare specialist found 34 dropper bottles yesterday and 62 more today. How many dropper bottles in all? = 96 (R) · There were 100 sheet masks. 38 were used up. How many sheet masks are left? = 62 (D) · Skincare specialist lined up 11 rows of 6 dropper bottles. How many dropper bottles in all? = 66 (I) · There were 113 sunscreen tubes. 9 were used up. How many sunscreen tubes are left? = 104 (N) · Skincare specialist found 22 sheet masks yesterday and 57 more today. How many sheet masks in all? = 79 (E) · Skincare specialist found 25 sunscreen tubes yesterday and 8 more today. How many sunscreen tubes in all? = 33 (B) · Skincare specialist lined up 12 rows of 5 dropper bottles. How many dropper bottles in all? = 60 (U)

Clue 4 (Percentages): "A HAIR TIE FOR A SLEEK HIGH PONYTAIL WAS LEFT"

10% of 430 = 43 (A) · 10% of 10 = 1 (O) · 10% of 220 = 22 (E) · 10% of 440 = 44 (F) · 10% of 330 = 33 (S) · 50% of 54 = 27 (W) · 5% of 200 = 10 (T) · 40% of 5 = 2 (H) · 10% of 230 = 23 (R) · 40% of 95 = 38 (G) · 50% of 56 = 28 (N) · 20% of 155 = 31 (Y) · 25% of 180 = 45 (K) · 10% of 110 = 11 (I) · 75% of 28 = 21 (L) · 50% of 6 = 3 (P)

Clue 5 (Division facts (1-12)): surviving statement is box 1 → Miranda Kerr

$99 \div 9 = 11$ · $9 \div 1 = 9$ · $44 \div 11 = 4$ · $6 \div 3 = 2$ · $30 \div 6 = 5$ · $54 \div 9 = 6$ · $30 \div 3 = 10$ · $16 \div 2 = 8$ · $28 \div 4 = 7$ · $12 \div 1 = 12$ · $15 \div 5 = 3$