



The Great Souffle Sabotage

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 5-6

Detective: _____ **Date:** _____

The Mayor's Golden Souffle has been completely ruined right before the grand banquet! A mysterious culprit snuck into the pastry kitchen, messed with the ingredients, and left a trail of sticky clues. It is up to you to decode the evidence and find the true Culinary Saboteur before dinner is served.

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 Culinary 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 INGREDIENT	KITCHEN GADGET	UNIFORM POCKET	HAIR NET STYLE	ALLERGY TRIGGER
Carla Hall	sweet maple syrup	nitrogen blaster	right sided pocket	blue peak cap	crushed black pepper
Marcus Samuelsson	smoky hot sauce	infra red thermometer	right sided pocket	white pleated toque	sprinkle of cinnamon
Christina Tosi	salty blue cheese	infra red thermometer	right sided pocket	pink bouffant net	scent of mint
Wolfgang Puck	sweet maple syrup	laser blowtorch	right sided pocket	pink bouffant net	crushed black pepper
Gordon Ramsay	bitter dark chocolate	nitrogen blaster	right sided pocket	pink bouffant net	crushed black pepper
Rachel Ray	salty blue cheese	laser blowtorch	right sided pocket	white pleated toque	sprinkle of cinnamon
Guy Fieri	smoky hot sauce	sonic sifter	left sided pocket	white pleated toque	crushed black pepper
Roy Choi	bitter dark chocolate	turbo whisk	right sided pocket	pink bouffant net	scent of mint
Prue Leith	bitter dark chocolate	turbo whisk	left sided pocket	white pleated toque	sprinkle of cinnamon
Jamie Oliver	bitter dark chocolate	sonic sifter	right sided pocket	blue peak cap	crushed black pepper
Bobby Flay	salty blue cheese	infra red thermometer	right sided pocket	blue peak cap	sprinkle of cinnamon
Padma Lakshmi	smoky hot sauce	sonic sifter	left sided pocket	pink bouffant net	sprinkle of cinnamon
Duff Goldman	sweet maple syrup	turbo whisk	right sided pocket	blue peak cap	scent of mint
Nigella Lawson	smoky hot sauce	turbo whisk	left sided pocket	pink bouffant net	crushed black pepper
David Chang	salty blue cheese	nitrogen blaster	right sided pocket	pink bouffant net	crushed black pepper
Alton Brown	sour lemon zest	infra red thermometer	right sided pocket	pink bouffant net	sprinkle of cinnamon
Emeril Lagasse	smoky hot sauce	turbo whisk	right sided pocket	pink bouffant net	crushed black pepper
Tom Colicchio	sweet maple syrup	laser blowtorch	right sided pocket	blue peak cap	sprinkle of cinnamon
Jacques Pepin	bitter dark chocolate	infra red thermometer	left sided pocket	pink bouffant net	crushed black pepper
Paul Hollywood	smoky hot sauce	infra red thermometer	right sided pocket	white pleated toque	crushed black pepper
Alice Waters	salty blue cheese	sonic sifter	right sided pocket	pink bouffant net	crushed black pepper

CLUE 1 Integers

We checked the walk-in freezer temperature log. The temperature went below and above zero while the culprit was inside. Use these integer shifts to find the final temperature.

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

T						T											T
15	28	14	11	21	1	2	15	14	19	22	10	2	14	11	18	2	15
													T				
19	11	14	21	11	2	18	3	13	11	3	6	15	14	22			

$5 - (-10) = \square \rightarrow$ T	$(-10) + 24 = \square \rightarrow$ E	$14 - (-4) = \square \rightarrow$ N
$(-13) + 32 = \square \rightarrow$ U	$(-8) + 9 = \square \rightarrow$ B	$(-14) + 25 = \square \rightarrow$ S
$17 - (-11) = \square \rightarrow$ H	$(-3) + 25 = \square \rightarrow$ R	$(-9) + 15 = \square \rightarrow$ F
$(-7) + 9 = \square \rightarrow$ O	$(-2) + 12 = \square \rightarrow$ D	$17 - (-4) = \square \rightarrow$ A
$(-2) + 15 = \square \rightarrow$ C	$(-11) + 14 = \square \rightarrow$ I	

Scratch space:

CLUE 2 Percentages

The baker found a spilled recipe card. The sugar percentage was accidentally mixed up with the flour. Calculate the correct percentages to unlock the next clue.

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

T										T										T
23	39	27	17	8	17	48	27	50	23	39	58	17	58	33	34	53	39	23		
17	34	24	27	24	48	3	50	28	27	23										

5% of 460 = → T	40% of 120 = → P	25% of 96 = → D
50% of 54 = → E	10% of 170 = → S	60% of 5 = → O
5% of 680 = → I	10% of 280 = → K	10% of 500 = → C
40% of 145 = → A	50% of 16 = → U	20% of 195 = → H
25% of 212 = → G	25% of 132 = → R	

Scratch space:

CLUE 3
Order of operations

To bake a perfect batch of cupcakes, you must follow the recipe steps in the exact right order. Solve this order of operations puzzle to find the clue.

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

B																			
17	94	70	82	13	8	87	8	8	87	48	98	53	120	8	98	53	104	87	
		B																	
98	70	17	120	53	87	30	48												

$5 \times 7 - 18 = \square \rightarrow \text{B}$

$74 + 6 \times 5 = \square \rightarrow \text{H}$

$62 + 2 \times 4 = \square \rightarrow \text{A}$

$11 \times 10 - 12 = \square \rightarrow \text{S}$

$7 + 2 \times 3 = \square \rightarrow \text{K}$

$43 + 2 \times 5 = \square \rightarrow \text{T}$

$2 + 2 \times 3 = \square \rightarrow \text{P}$

$96 + 6 \times 4 = \square \rightarrow \text{O}$

$8 \times 11 - 6 = \square \rightarrow \text{C}$

$20 + 5 \times 2 = \square \rightarrow \text{U}$

$10 \times 6 - 12 = \square \rightarrow \text{R}$

$58 + 4 \times 9 = \square \rightarrow \text{L}$

$11 \times 9 - 12 = \square \rightarrow \text{E}$

Scratch space:

CLUE 4 Exponents

The secret sourdough yeast doubles in size every hour. Use exponents to figure out how big the dough got while the kitchen was unattended.

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

W											
125	169	128	343	216	25	8	81	324	49	25	32

4	343	216	128	128	81	25	256	25	169	256	121	289

$5^3 = \square \rightarrow$ W	$3^4 = \square \rightarrow$ A	$5^2 = \square \rightarrow$ N	$2^2 = \square \rightarrow$ B
$17^2 = \square \rightarrow$ R	$18^2 = \square \rightarrow$ P	$2^7 = \square \rightarrow$ F	$13^2 = \square \rightarrow$ E
$2^3 = \square \rightarrow$ D	$7^2 = \square \rightarrow$ I	$2^8 = \square \rightarrow$ T	$7^3 = \square \rightarrow$ O
$11^2 = \square \rightarrow$ H	$2^5 = \square \rightarrow$ K	$6^3 = \square \rightarrow$ U	

Scratch space:

CLUE 5**Two-step equations - the last clue**

Three identical flour sacks and a five pound bag of sugar weigh thirty-five pounds in total. Solve this equation to find the weight of one flour sack and uncover the last lead.

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:

$4x + 3 = 43, x = \boxed{}$

$3x + 4 = 19, x = \boxed{}$

$6x + 11 = 23, x = \boxed{}$

$3x + 1 = 19, x = \boxed{}$

$3x + 1 = 28, x = \boxed{}$

$3x + 12 = 48, x = \boxed{}$

$2x + 2 = 4, x = \boxed{}$

$2x + 6 = 28, x = \boxed{}$

$5x + 3 = 18, x = \boxed{}$

$6x + 10 = 58, x = \boxed{}$

$2x + 2 = 16, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain crumbled salty blue cheese into the ventilation, then scrambled the egg whites with a turbo whisk.
2. The villain crumbled salty blue cheese into the ventilation, then froze the frosting solid with a nitrogen blaster.
3. The villain melted bitter dark chocolate over the stove, then scorched the recipe book with a laser blowtorch.
4. The villain slathered everything in smoky hot sauce, then scrambled the egg whites with a turbo whisk.
5. The villain poured sweet maple syrup into the lock, then scorched the recipe book with a laser blowtorch.
6. The villain crumbled salty blue cheese into the ventilation, then scorched the recipe book with a laser blowtorch.
7. The villain squeezed sour lemon zest onto the floor, then scorched the recipe book with a laser blowtorch.
8. The villain poured sweet maple syrup into the lock, then checked the temperature with an infra red thermometer.
9. The villain squeezed sour lemon zest onto the floor, then froze the frosting solid with a nitrogen blaster.
10. The villain melted bitter dark chocolate over the stove, then froze the frosting solid with a nitrogen blaster.
11. The villain slathered everything in smoky hot sauce, then scorched the recipe book with a laser blowtorch.
12. The villain poured sweet maple syrup into the lock, then scrambled the egg whites with a turbo whisk.

Answer Key

The Great Souffle Sabotage

Culprit: Emeril Lagasse

smoky hot sauce · turbo whisk · right sided pocket · pink bouffant net · crushed black pepper

Trail: Start 21 → Clue 1 17 → Clue 2 14 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE SABOTEUR DOES NOT USE A SONIC SIFTER"

$5 - (-10) = 15$ (T) · $(-10) + 24 = 14$ (E) · $14 - (-4) = 18$ (N) · $(-13) + 32 = 19$ (U) · $(-8) + 9 = 1$ (B) · $(-14) + 25 = 11$ (S) · $17 - (-11) = 28$ (H) · $(-3) + 25 = 22$ (R) · $(-9) + 15 = 6$ (F) · $(-7) + 9 = 2$ (O) · $(-2) + 12 = 10$ (D) · $17 - (-4) = 21$ (A) · $(-2) + 15 = 13$ (C) · $(-11) + 14 = 3$ (I)

Clue 2 (Percentages): "THE SUSPECT HAS A RIGHT SIDED POCKET"

5% of 460 = 23 (T) · 40% of 120 = 48 (P) · 25% of 96 = 24 (D) · 50% of 54 = 27 (E) · 10% of 170 = 17 (S) · 60% of 5 = 3 (O) · 5% of 680 = 34 (I) · 10% of 280 = 28 (K) · 10% of 500 = 50 (C) · 40% of 145 = 58 (A) · 50% of 16 = 8 (U) · 20% of 195 = 39 (H) · 25% of 212 = 53 (G) · 25% of 132 = 33 (R)

Clue 3 (Order of operations): "BLACK PEPPER STOPS THE SABOTEUR"

$5 \times 7 - 18 = 17$ (B) · $74 + 6 \times 5 = 104$ (H) · $62 + 2 \times 4 = 70$ (A) · $11 \times 10 - 12 = 98$ (S) · $7 + 2 \times 3 = 13$ (K) · $43 + 2 \times 5 = 53$ (T) · $2 + 2 \times 3 = 8$ (P) · $96 + 6 \times 4 = 120$ (O) · $8 \times 11 - 6 = 82$ (C) · $20 + 5 \times 2 = 30$ (U) · $10 \times 6 - 12 = 48$ (R) · $58 + 4 \times 9 = 94$ (L) · $11 \times 9 - 12 = 87$ (E)

Clue 4 (Exponents): "WE FOUND A PINK BOUFFANT NET HAIR"

$5^3 = 125$ (W) · $3^4 = 81$ (A) · $5^2 = 25$ (N) · $2^2 = 4$ (B) · $17^2 = 289$ (R) · $18^2 = 324$ (P) · $2^7 = 128$ (F) · $13^2 = 169$ (E) · $2^3 = 8$ (D) · $7^2 = 49$ (I) · $2^8 = 256$ (T) · $7^3 = 343$ (O) · $11^2 = 121$ (H) · $2^5 = 32$ (K) · $6^3 = 216$ (U)

Clue 5 (Two-step equations): surviving statement is box 4 → Emeril Lagasse

$4x + 3 = 43, x = 10$ · $3x + 4 = 19, x = 5$ · $6x + 11 = 23, x = 2$ · $3x + 1 = 19, x = 6$ · $3x + 1 = 28, x = 9$ · $3x + 12 = 48, x = 12$ · $2x + 2 = 4, x = 1$ · $2x + 6 = 28, x = 11$ · $5x + 3 = 18, x = 3$ · $6x + 10 = 58, x = 8$ · $2x + 2 = 16, x = 7$