



The Hogwarts Library Mystery

Grade 5 math · Fractions of a number, Multi-step word problems, Order of operations, Multiplication, Division · Reading
level grades 5-6

Detective: _____ **Date:** _____

Someone has sneaked into the restricted section of the Hogwarts library and swapped the potion textbooks with singing cookbooks! Madam Pince is furious, and the Gryffindor Prefect has lost their copy of Advanced Potion-Making. You must search the castle, solve the magical equations, and uncover the mischievous spellcaster before the next class begins!

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 mischievous spellcaster is _____

Possible suspects

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

NAME	HOUSE SPECIALIZATION	MAGICAL ARTIFACT	WAND HAND	WAND SPARK SINGE	BOGGART FORM
Colin	Herbology Care	Sneakoscope	Right-handed	Singe of Red Sparks	Fear of Spiders
Blaise	Defense Spells	Quick-Quotes Quill	Right-handed	Singe of Blue Sparks	Fear of Spiders
Seamus	Defense Spells	Remembrall	Left-handed	Singe of Blue Sparks	Fear of Banshees
Pansy	Charms Casts	Quick-Quotes Quill	Left-handed	Singe of Gold Sparks	Fear of Banshees
Lavender	Potions Mastery	Sneakoscope	Right-handed	Singe of Blue Sparks	Fear of Dementors
Padma	Charms Casts	Sneakoscope	Left-handed	Singe of Blue Sparks	Fear of Spiders
Harry	Charms Casts	Marauders Map	Left-handed	Singe of Red Sparks	Fear of Dementors
Hannah	Defense Spells	Marauders Map	Left-handed	Singe of Gold Sparks	Fear of Banshees
Luna	Transfiguration	Omnioculars	Right-handed	Singe of Blue Sparks	Fear of Banshees
Ginny	Defense Spells	Marauders Map	Left-handed	Singe of Blue Sparks	Fear of Spiders
Hermione	Potions Mastery	Omnioculars	Left-handed	Singe of Gold Sparks	Fear of Dementors
Neville	Transfiguration	Omnioculars	Left-handed	Singe of Blue Sparks	Fear of Spiders
Draco	Charms Casts	Quick-Quotes Quill	Left-handed	Singe of Blue Sparks	Fear of Spiders
Ron	Potions Mastery	Marauders Map	Left-handed	Singe of Blue Sparks	Fear of Dementors
Angelina	Herbology Care	Remembrall	Left-handed	Singe of Blue Sparks	Fear of Spiders
Parvati	Charms Casts	Quick-Quotes Quill	Left-handed	Singe of Blue Sparks	Fear of Banshees
George	Potions Mastery	Quick-Quotes Quill	Right-handed	Singe of Red Sparks	Fear of Spiders
Justin	Charms Casts	Omnioculars	Left-handed	Singe of Blue Sparks	Fear of Banshees
Oliver	Transfiguration	Omnioculars	Left-handed	Singe of Gold Sparks	Fear of Spiders
Cho	Transfiguration	Remembrall	Left-handed	Singe of Red Sparks	Fear of Spiders
Katie	Charms Casts	Sneakoscope	Left-handed	Singe of Blue Sparks	Fear of Dementors

Fractions of a number

To begin your search, you help Hagrid count the runaway Bowtruckles in the Forbidden Forest. He had some in his pockets, lost a few, and then found a nesting group.

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 sequence: an orange box with 'T', three empty boxes, an orange box with 'T', and seven empty boxes. The bottom row contains the following sequence: three empty boxes, an orange box with 'T', two empty boxes, four empty boxes, five empty boxes, three empty boxes, and three empty boxes. Below each box is a number. The top row numbers are: 14, 37, 13, 19, 24, 32, 30, 36, 2, 14, 27, 16, 13, 28, 18, 16, 14. The bottom row numbers are: 24, 28, 13, 14, 37, 13, 6, 10, 36, 10, 24, 27, 13, 36, 28, 6, 10, 30.

T							T										
14	37	13	19	24	32	30	36	2	14	27	16	13	28	18	16	14	
			T														
24	28	13	14	37	13	6	10	36	10	24	27	13	36	28	6	10	30

$$1/2 \text{ of } 28 = \boxed{} \rightarrow \boxed{\text{T}}$$

$6/8$ of 24 = $\rightarrow$ **N**

$$2/8 \text{ of } 8 = \boxed{} \rightarrow \boxed{1}$$

$$2/6 \text{ of } 72 = \boxed{} \rightarrow \boxed{\text{U}}$$

$\frac{1}{3}$ of 48 = $\rightarrow$

$$\frac{1}{2} \text{ of } 56 = \boxed{} \rightarrow \boxed{\text{S}}$$

5/10 of 20 = → **A**

2/10 of 95 = → **C**

$$\frac{4}{5} \text{ of } 40 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$1/5 \text{ of } 150 = \boxed{} \rightarrow \boxed{\text{P}}$$

5/10 of 74 = → **H**

2/10 of 30 = → **M**

$4/8$ of $54 = \boxed{} \rightarrow \boxed{\text{D}}$

$$1/10 \text{ of } 130 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$\frac{3}{4} \text{ of } 48 = \boxed{} \rightarrow \boxed{\text{R}}$$

Scratch space:

CLUE 2

Multi-step word problems

In the Herbology greenhouse, Professor Sprout needs to know exactly how many Mandrake pots are ready. Only a fraction of the total batch has fully grown leaves.

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

A witness saw the villain was L D D .

46 72 70 20 49 85 84 72

There were 104 spellbooks in all. 12 spellbooks were set aside. The rest were shared equally among 2 Gryffindor House. How many spellbooks did each get?

Answer: → L

Potion student filled 4 boxes with 7 floo powder bags each, then found 57 more floo powder bags. How many floo powder bags are there in all?

Answer: → A

Potion student earned 8 spellbooks in each of 6 rounds, plus 11 bonus spellbooks. Then 10 spellbooks were lost. How many spellbooks are left?

Answer: → H

There were 158 brass scales in all. 2 Gryffindor House used 29 brass scales each. The other 5 Gryffindor House shared the rest equally. How many brass scales did each of the other Gryffindor House get?

Answer: → T

There were 250 glowing vials in all. 34 glowing vials were set aside. The rest were shared equally among 3 Gryffindor House. How many glowing vials did each get?

Answer: → E

There were 657 glowing vials in all. 27 glowing vials were set aside. The rest were shared equally among 9 Gryffindor House. How many glowing vials did each get?

Answer: → F

There were 504 spellbooks in all. 4 Gryffindor House used 21 spellbooks each. The other 5 Gryffindor House shared the rest equally. How many spellbooks did each of the other Gryffindor House get?

Answer: → N

Scratch space:

CLUE 3
Order of operations

Professor Snape demands you calculate the brewing sequence of a Shrinking Solution. You must solve his strict order of potion stirs and ingredient drops.

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

A					A									
10	51	44	11	11	10	27	28	56	60	69	12	64	27	
57	27	69	11	67	28	64	59	64	12	28	67	64	28	67

$4 + 2 \times 3 = \square \rightarrow \boxed{\text{A}}$

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

$11 \times 6 - 6 = \square \rightarrow \boxed{\text{P}}$

$42 + 7 \times 2 = \square \rightarrow \boxed{\text{S}}$

$3 + 2 \times 4 = \square \rightarrow \boxed{\text{G}}$

$12 + 8 \times 4 = \square \rightarrow \boxed{\text{O}}$

$8 + 5 \times 4 = \square \rightarrow \boxed{\text{T}}$

$6 + 2 \times 3 = \square \rightarrow \boxed{\text{D}}$

$13 + 7 \times 8 = \square \rightarrow \boxed{\text{I}}$

$10 \times 6 - 1 = \square \rightarrow \boxed{\text{N}}$

$8 \times 9 - 5 = \square \rightarrow \boxed{\text{H}}$

$33 + 3 \times 8 = \square \rightarrow \boxed{\text{F}}$

$36 + 3 \times 5 = \square \rightarrow \boxed{\text{B}}$

$17 + 5 \times 2 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 4
Multiplication facts (1-12)

You find a clue left near the Divination tower. Professor Trelawney has arranged crystal balls in equal rows, and calculating the total reveals a hidden pattern.

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

S							S	S										
22	55	11	100	11	49	110	22	22	3	100	6	11	25	88	72	108	11	
S							S											
22	8	110	2	10	2	11	22	3	25	108	11							

$2 \times 11 = \square \rightarrow$ S	$1 \times 10 = \square \rightarrow$ K	$9 \times 8 = \square \rightarrow$ L	
$10 \times 10 = \square \rightarrow$ N	$2 \times 1 = \square \rightarrow$ R	$5 \times 11 = \square \rightarrow$ C	
$1 \times 11 = \square \rightarrow$ E	$5 \times 5 = \square \rightarrow$ D	$1 \times 3 = \square \rightarrow$ I	$2 \times 4 = \square \rightarrow$ P
$2 \times 3 = \square \rightarrow$ G	$7 \times 7 = \square \rightarrow$ H	$9 \times 12 = \square \rightarrow$ U	
$11 \times 10 = \square \rightarrow$ A	$11 \times 8 = \square \rightarrow$ B		

Scratch space:

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

To get past a locked corridor, you must divide a bag of Bertie Bott Every Flavor Beans equally among the gargoyles guarding the stairs.

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:

$27 \div 9 = \boxed{}$

$32 \div 8 = \boxed{}$

$80 \div 8 = \boxed{}$

$24 \div 12 = \boxed{}$

$121 \div 11 = \boxed{}$

$56 \div 8 = \boxed{}$

$25 \div 5 = \boxed{}$

$4 \div 4 = \boxed{}$

$108 \div 9 = \boxed{}$

$16 \div 2 = \boxed{}$

$27 \div 3 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain transfigured the classroom door into solid chocolate, then consulted a worn marauders map.
2. The villain shielded the escape route with a red sparks barrier, then adjusted a pair of brass omnioculars.
3. The villain cast a levitation charm on the library tables, then scribbled a false note with a quick quotes quill.
4. The villain cast a levitation charm on the library tables, then scanned the hallways using a sneakoscope.
5. The villain brewed a highly unstable sleeping draught, then dropped a glowing red remembrall.
6. The villain transfigured the classroom door into solid chocolate, then adjusted a pair of brass omnioculars.
7. The villain transfigured the classroom door into solid chocolate, then dropped a glowing red remembrall.
8. The villain transfigured the classroom door into solid chocolate, then scribbled a false note with a quick quotes quill.
9. The villain shielded the escape route with a red sparks barrier, then scribbled a false note with a quick quotes quill.
10. The villain rearranged the venomous tentacula plants, then dropped a glowing red remembrall.
11. The villain brewed a highly unstable sleeping draught, then consulted a worn marauders map.
12. The villain rearranged the venomous tentacula plants, then consulted a worn marauders map.

Answer Key

The Hogwarts Library Mystery

Culprit: Neville

Transfiguration · Omnioculars · Left-handed · Singe of Blue Sparks · Fear of Spiders

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

Clue 1 (Fractions of a number): "THE CULPRIT DOES NOT USE THE MARAUDERS MAP"

$\frac{1}{2}$ of 28 = 14 (T) · $\frac{6}{8}$ of 24 = 18 (N) · $\frac{2}{8}$ of 8 = 2 (I) · $\frac{2}{6}$ of 72 = 24 (U) · $\frac{1}{3}$ of 48 = 16 (O) · $\frac{1}{2}$ of 56 = 28 (S) · $\frac{5}{10}$ of 20 = 10 (A) · $\frac{2}{10}$ of 95 = 19 (C) · $\frac{4}{5}$ of 40 = 32 (L) · $\frac{1}{5}$ of 150 = 30 (P) · $\frac{5}{10}$ of 74 = 37 (H) · $\frac{2}{10}$ of 30 = 6 (M) · $\frac{4}{8}$ of 54 = 27 (D) · $\frac{1}{10}$ of 130 = 13 (E) · $\frac{3}{4}$ of 48 = 36 (R)

Clue 2 (Multi-step word problems): "LEFT HANDED"

There were 104 spellbooks in all. 12 spellbooks were set aside. The rest were shared equally among 2 Gryffindor House. How many spellbooks did each get? = 46 (L) · Potion student filled 4 boxes with 7 floo powder bags each, then found 57 more floo powder bags. How many floo powder bags are there in all? = 85 (A) · Potion student earned 8 spellbooks in each of 6 rounds, plus 11 bonus spellbooks. Then 10 spellbooks were lost. How many spellbooks are left? = 49 (H) · There were 158 brass scales in all. 2 Gryffindor House used 29 brass scales each. The other 5 Gryffindor House shared the rest equally. How many brass scales did each of the other Gryffindor House get? = 20 (T) · There were 250 glowing vials in all. 34 glowing vials were set aside. The rest were shared equally among 3 Gryffindor House. How many glowing vials did each get? = 72 (E) · There were 657 glowing vials in all. 27 glowing vials were set aside. The rest were shared equally among 9 Gryffindor House. How many glowing vials did each get? = 70 (F) · There were 504 spellbooks in all. 4 Gryffindor House used 21 spellbooks each. The other 5 Gryffindor House shared the rest equally. How many spellbooks did each of the other Gryffindor House get? = 84 (N)

Clue 3 (Order of operations): "A BOGGART SPIDER FRIGHTENED THE THIEF"

$4 + 2 \times 3 = 10$ (A) · $11 \times 8 - 24 = 64$ (E) · $11 \times 6 - 6 = 60$ (P) · $42 + 7 \times 2 = 56$ (S) · $3 + 2 \times 4 = 11$ (G) · $12 + 8 \times 4 = 44$ (O) · $8 + 5 \times 4 = 28$ (T) · $6 + 2 \times 3 = 12$ (D) · $13 + 7 \times 8 = 69$ (I) · $10 \times 6 - 1 = 59$ (N) · $8 \times 9 - 5 = 67$ (H) · $33 + 3 \times 8 = 57$ (F) · $36 + 3 \times 5 = 51$ (B) · $17 + 5 \times 2 = 27$ (R)

Clue 4 (Multiplication facts (1-12)): "SCENE HAS SINGED BLUE SPARK RESIDUE"

$2 \times 11 = 22$ (S) · $1 \times 10 = 10$ (K) · $9 \times 8 = 72$ (L) · $10 \times 10 = 100$ (N) · $2 \times 1 = 2$ (R) · $5 \times 11 = 55$ (C) · $1 \times 11 = 11$ (E) · $5 \times 5 = 25$ (D) · $1 \times 3 = 3$ (I) · $2 \times 4 = 8$ (P) · $2 \times 3 = 6$ (G) · $7 \times 7 = 49$ (H) · $9 \times 12 = 108$ (U) · $11 \times 10 = 110$ (A) · $11 \times 8 = 88$ (B)

Clue 5 (Division facts (1-12)): surviving statement is box 6 → Neville

$27 \div 9 = 3$ · $32 \div 8 = 4$ · $80 \div 8 = 10$ · $24 \div 12 = 2$ · $121 \div 11 = 11$ · $56 \div 8 = 7$ · $25 \div 5 = 5$ · $4 \div 4 = 1$ · $108 \div 9 = 12$ · $16 \div 2 = 8$ · $27 \div 3 = 9$