MATH MYSTERY:

CASE OF THE GRADUATION GREMLINS

*Date:*_____

It is almost the end of the school year, but trouble has struck Mathhattan Elementary School! Teachers and students have reported that a gang of gremlins have been vandalizing the school and taking all sorts of important items required for graduation celebrations.

Mrs Frumpy complained, "The awards, certificates, memory books, games, prizes, hats and even my microphone have been taken! How are my students going to graduate now? They are so disappointed with these mischievous gremlins trying to ruin the end of year for everyone."

Sophia, a student, cried, "We were going to have a graduation party with food and games, but those terrible gremlins just stormed right into the classroom and took them all!"

Another student, named Anthony, put in the following statement. "I saw a group of gremlins sneak into the Principal's office and run out with her books, awards, trophies and computer! Someone must find where the gremlins are hiding with all of our things so that we can graduate and celebrate the end of year properly!"

MATH DETECTIVE NEEDED TO SEEK OUT THE GREMLIN GANG HIDEOUT AND RECOVER THE STOLEN GRADUATION ITEMS!!!

The police have made a list of all the possible places the gang of gremlins could be hiding out in. However, they need a super detective with math skills to help them solve this case.
Let's hope that we can find these gremlins trying to ruin graduation, recover all of the stolen items and put a stop to them ruining the end of the school year for everyone!

POSSIBLE HIDEOUTS

Hideout Place	Distance From Mathhattan Elementary School	Size	Temperature of Hideout	Positional Direction	Is It Underground? Yes/NO
Algebra Island	Far	Large	Warm	West	No
Crystal Cave	Close	Large	Cold	East	No
Sewer	Close	Large	Cold	North	Yes
Abandoned Theme Park	Far	Large	Warm	South	No
Pets Paradise Hotel	Close	Large	Warm	East	No
Crimson Chambers	Close	Medium	Cold	South	Yes
Chuck's Car Yard	Far	Medium	Warm	West	No
Pepe's Pizzeria Store Room	Close	Small	Cold	North	No
Behind the Donut Queen's Shop	Far	Small	Warm	South	No
The Historical Catacombs	Close	Large	Cold	South	Yes
Mrs Frumpy's Basement	Close	Small	Cold	North	Yes
The Graveyard	Far	Large	Cold	East	No
Mathhattan Subway Station	Close	Medium	Warm	South	Yes
The Local IT Company	Close	Medium	Cold	South	No
Slimewort's Abandoned Lair	Close	Small	Cold	West	Yes

Solve the clues and then cross the hideout place off the list until one remains! The last place remaining is where the gremlins are hiding with all of the graduation items!

Name: _____ Case of the Graduation Gremlins Ms J's Resource Creations ©

SQUARE NUMBERS – CLUE 1

Crack the code by completing the square number questions below. Use your answers to match and place the letters in the boxes to reveal the clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

49	64	144	9	100

					U	
64	9	121	144	36	4	49

	U		
25	4	81	49

1	144

400	16	36	81	144

49	36

49	64	144

81	400	64	36	36	16

$2^2 =$ 4 = U

$4^2 =$ _____ = L

$10^2 =$ _____ = R

$3^2 =$ _____ = I

$5^2 =$ _____ = M

$8^2 =$ _____ = H

$12^2 =$ _____ = E

$9^2 =$ _____ = S

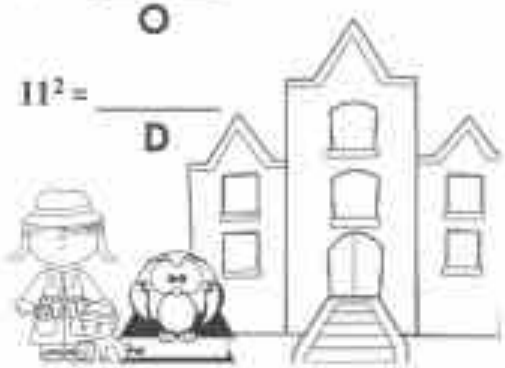
$6^2 =$ _____ = O

$1^2 =$ _____ = B

$7^2 =$ _____ = T

$11^2 =$ _____ = D

$20^2 =$ _____ = C

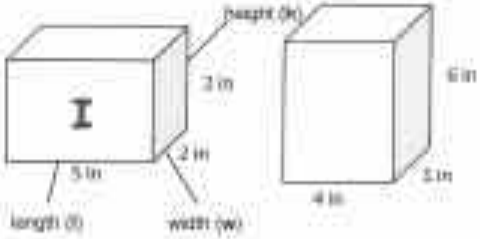


Name: _____ Case of the Graduation Gremlins

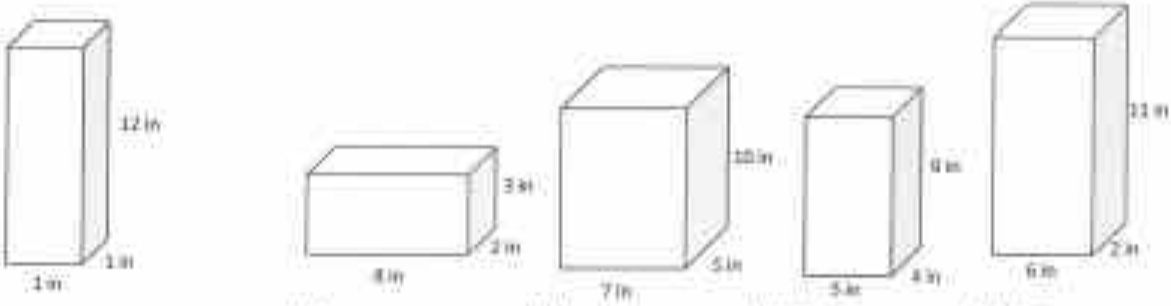
Imperial Units

VOLUME – CLUE 2

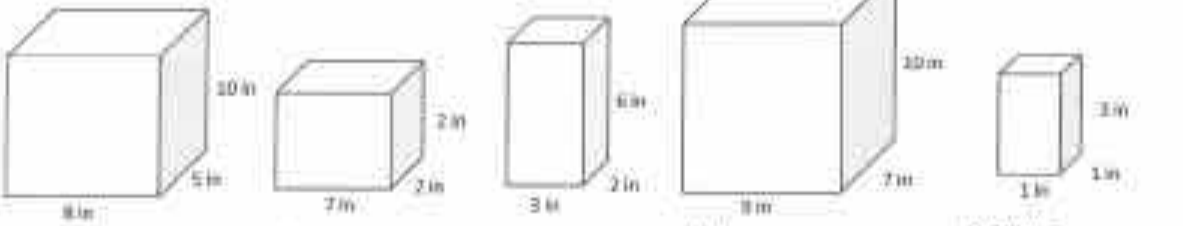
Reveal a clue about the Gremlins hideout place by working out the volume of each rectangular prism below using the volume formula **V= L X W X H**. Use your answers to find which letter to place inside each shape. The first one has been done for you!



Volume = 20 in^3 Volume = _____ Volume = _____ Volume = _____



Volume = _____ Volume = _____ Volume = _____ Volume = _____ Volume = _____



Volume = _____ Volume = _____ Volume = _____ Volume = _____ Volume = _____

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20 cubic inches = I

28 cubic inches = L

36 cubic inches = A

3 cubic inches = E

33 cubic inches = S

132 cubic inches = D

12 cubic inches = A

180 cubic inches = L

24 cubic inches = T

350 cubic inches = O

90 cubic inches = I

630 cubic inches = C

48 cubic inches = C

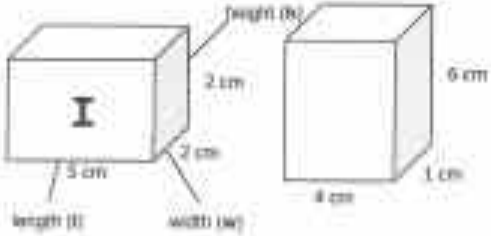
400 cubic inches = P

Name: _____ Case of the Graduation Gremlins

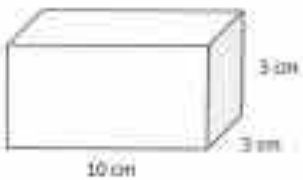
Metric Units

VOLUME – CLUE 2

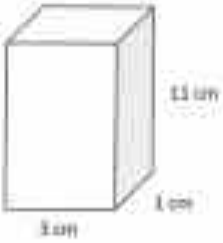
Reveal a clue about the Gremlins hideout place by working out the volume of each rectangular prism below using the volume formula **V= L X W X H**. Use your answers to find which letter to place inside each shape. The first one has been done for, you!



Volume = 20 cm³

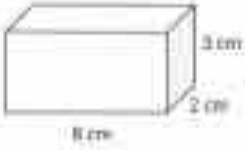


Volume = _____



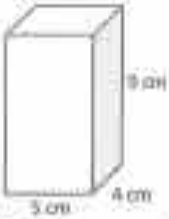
Volume = _____

Volume = _____

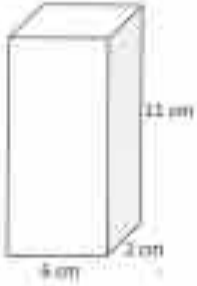


Volume = _____

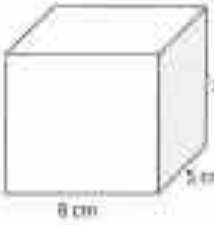
Volume = _____



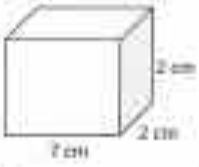
Volume = _____



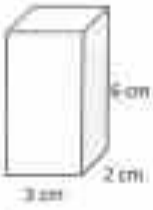
Volume = _____



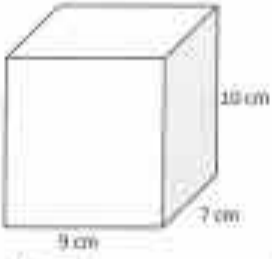
Volume = _____



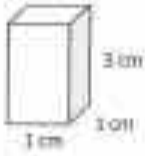
Volume = _____



Volume = _____



Volume = _____



Volume = _____

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20 cm³ = I	28 cm³ = L	36 cm³ = A
3 cm³ = E	33 cm³ = S	132 cm³ = D
12 cm³ = A	180 cm³ = L	24 cm³ = T
350 cm³ = O	90 cm³ = I	630 cm³ = C
48 cm³ = C	400 cm³ = P	

REDUCING FRACTIONS – CLUE 3

In the grid below you will find a number of public statements that the police collected, however unfortunately only one of them is revealing a correct clue. Reduce the fractions to the lowest form in the list at the bottom of the page, and then look for your answer in the statement boxes and cross out that box (meaning that the statement in that box has been eliminated). The one statement box left standing after completing all of the questions, is the one with the correct clue!

Do you think that it is possible that the gremlins are hiding in the school? $\frac{7}{10}$	My sister said that she saw a gang of gremlins running with all of the graduation items towards Chuck's Car Yard. $\frac{3}{4}$	There has been some gossip around town that they are hiding in a medium sized place south of Mathhatten Elementary. $\frac{1}{8}$	I'd say they are probably also who are responsible for our poor Internet connection lately, have you check in with the Local IT Company? $\frac{3}{40}$
I think I saw a couple of gremlins hiding a stash of certificates in a place in the northern direction. $\frac{4}{5}$	I saw this medium place that would be great for hiding all of the items they took. $\frac{9}{10}$	They are probably lurking in one of those strange places in the south. $\frac{2}{3}$	I'm pretty sure the gremlins have been meddling with my computer every night! $\frac{1}{5}$
My guess is that the gremlins are probably hiding in a large place. $\frac{1}{3}$	I heard that gremlins are scared of the dark, so they wouldn't be hiding underground. $\frac{3}{5}$	My Aunt said that she spoke to a man who said that he saw a bunch of gremlins running with the graduation items west of Mathhatten. $\frac{1}{4}$	I wouldn't be surprised if they were colluding with Mrs Frumpy and in fact hiding in her basement! $\frac{9}{20}$
The gremlins must be hiding underground to not be easily noticed or found with all of the items. $\frac{2}{5}$	The gremlins must be hiding in a small place, because they like confined spaces $\frac{6}{11}$	I'm pretty sure I saw a gremlin running into the local IT company. $\frac{1}{2}$	Rumor has it that the gremlins are probably using Slimewort's abandoned lair. $\frac{1}{6}$

$\frac{10}{30} =$ $\frac{5}{40} =$ $\frac{24}{30} =$ $\frac{25}{50} =$ $\frac{44}{66} =$

$\frac{81}{108} =$ $\frac{450}{1000} =$ $\frac{12}{60} =$ $\frac{36}{66} =$ $\frac{49}{70} =$

$\frac{40}{160} =$ $\frac{8}{48} =$ $\frac{900}{1000} =$ $\frac{75}{1000} =$ $\frac{36}{60} =$

Name: _____ Case of the Graduation Gremlins

COORDINATES– CLUE 4

Locate which letter is at each coordinate listed, and then write that letter in the empty box provided above the coordinate given. Once you have found all of the letters and arranged them into the empty boxes, a clue will be revealed! The first one has been done for you.

	A	B	C	D	E	F	G	H	I	J	K
10	S	A	W	O	D	I	N	S	H	U	V
9	E	S	D	S	A	C	R	O	S	M	F
8	P	G	T	W	J	S	F	T	L	R	O
7	F	Y	I	A	G	M	H	R	I	P	U
6	Q	T	H	K	O	C	L	A	E	L	F
5	I	B	O	E	G	I	N	P	L	N	J
4	L	U	X	F	N	A	T	M	S	R	O
3	N	E	T	R	U	Z	G	A	I	U	E
2	G	O	G	A	K	E	M	V	O	J	H
1	F	I	D	S	E	T	H	Y	P	N	O

G						
(C,2)	(H,7)	(E,1)	(J,9)	(A,4)	(C,7)	(G,5)

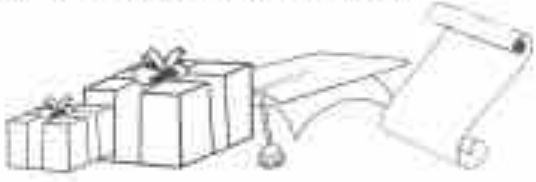
(K,6)	(E,6)	(I,2)	(G,4)	(A,8)	(D,3)	(F,5)	(J,1)	(B,6)	(H,10)

(D,8)	(K,3)	(G,9)	(I,6)

(A,7)	(K,1)	(B,4)	(J,5)	(E,10)

(I,10)	(F,2)	(H,3)	(C,9)	(B,1)	(E,4)	(A,2)

(F,8)	(D,10)	(J,3)	(C,8)	(G,1)



Name: _____ Case of the Graduation Gremlins

ADDING DECIMALS - CLUE 5

Discover clue 5 by correctly adding the decimals below. Locate your answer at the bottom and see what letter it matches to write in the box. The first one has been done for you!

23.1 + 22.2 = 45.3	13.04 + 21.02	56.3 + 31.4	43.2 + 13.6	19.8 + 36.1	63.94 + 12.51	10.3 + 44.93	76.39 + 2.55
T							

47.75 + 42.68	75.6 + 17.8	32.64 + 11.89	29.75 + 24.99	83.79 + 19.21	62.22 + 16.56

29.9 + 45.8	58.3 + 33.8	76.84 + 5.91	16.78 + 74.8	18.26 + 6.55	27.96 + 9.45	38.4 + 15.3	70.01 + 29.57

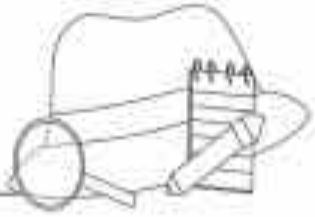
62.68 + 15.94	41.9 + 29.6	44.5 + 35.5	15.99 + 7.95	16.3 + 31.6	50.14 + 25.87	20.95 + 61.30

The answers are jumbled up below with a letter to help crack the code!

45.3 = T	76.01 = G	80 = O	82.75 = R	78.62 = S
	44.53 = S	78.94 = E	47.9 = A	75.7 = L
91.58 = G	55.9 = L	99.58 = R	56.8 = P	
103 = B	37.41 = F	90.43 = M	34.06 = H	
87.7 = E	82.25 = E	71.5 = T	24.81 = E	
23.94 = R	54.74 = T	55.23 = C	78.78 = E	
92.1 = A	76.45 = A	53.7 = O	93.4 = U	

SOLVE THE MYSTERY: WHERE ARE THE GRADUATION GREMLINS HIDING?

Detective



_____

(your name)

Has discovered that the Graduation Gremlins' Hideout is:

_____

Clues Checklist:

Clue 1 ☐

Clue 2 ☐

Clue 3 ☐

Clue 4 ☐

Clue 5 ☐

Teacher to check and tick

☐ Well done you have found where the gremlins are hiding and recovered all of the graduation items!

! ☐ Oops! No that is not where the gremlins are hiding. Try Again.

ANSWER SHEET – CLUE 1

Crack the code by completing the square number questions below. Use your answers to match and place the letters in the boxes to reveal the clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

T	H	E	I	R
49	64	144	9	100

Cross off all places that are far from the school.

H	I	D	E	O	U	T
64	9	121	144	36	4	49

M	U	S	T
25	4	81	49

B	E
1	144

C	L	O	S	E
400	16	36	81	144

T	O
49	36

T	H	E
49	64	144

S	C	H	O	O	L
81	400	64	36	36	16

2^2 = 4 — U

4^2 = 16 — L

10^2 = 100 — R

3^2 = 9 — I

5^2 = 25 — M

8^2 = 64 — H

12^2 = 144 — E

9^2 = 81 — S

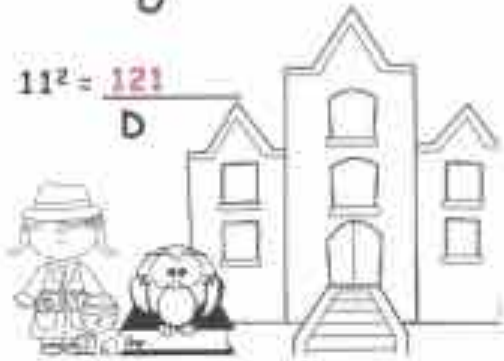
6^2 = 36 — O

1^2 = 1 — B

7^2 = 49 — T

11^2 = 121 — D

20^2 = 400 — C

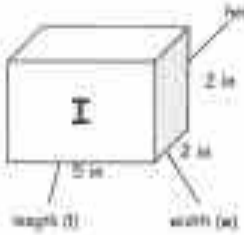


Name: _____ Case of the Graduation Gremlins

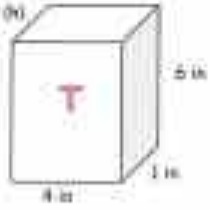
Imperial Units

ANSWER SHEET - CLUE 2

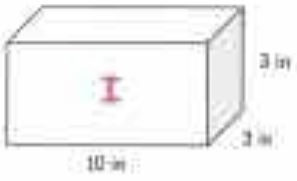
Reveal a clue about the Gremlins hideout place by working out the volume of each rectangular prism below using the volume formula V= L X W X H. Use your answers to find which letter to place inside each shape. The first one has been done for you!



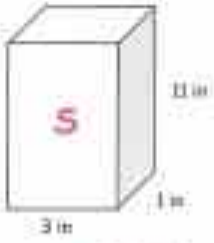
Volume = 20 in³



Volume = 24 in³

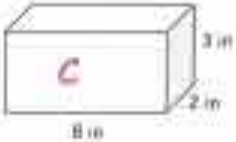


Volume = 90 in³

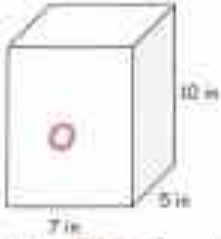


Volume = 33 in³

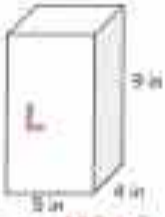
Volume = 12 in³



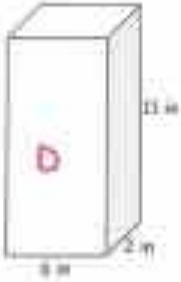
Volume = 48 in³



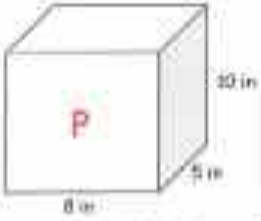
Volume = 350 in³



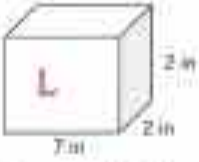
Volume = 180 in³



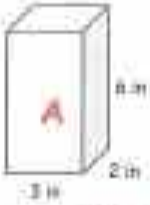
Volume = 132 in³



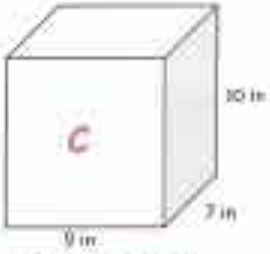
Volume = 400 in³



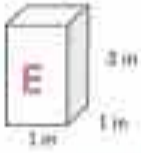
Volume = 28 in³



Volume = 36 in³



Volume = 630 in³



Volume = 3 in³

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20 cubic inches = I

3 cubic inches = E

12 cubic inches = A

350 cubic inches = O

48 cubic inches = C

28 cubic inches = L

33 cubic inches = S

180 cubic inches = L

90 cubic inches = I

400 cubic inches = P

36 cubic inches = A

132 cubic inches = D

24 cubic inches = T

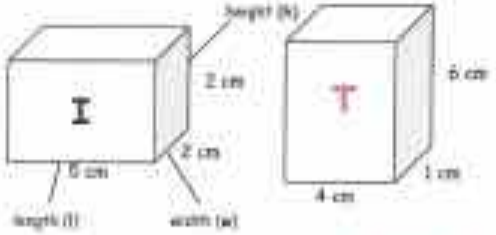
630 cubic inches = C

Name: _____ Case of the Graduation Gremlins

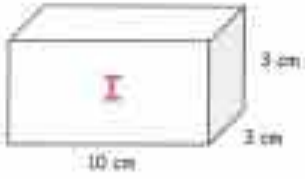
Metric Units

ANSWER SHEET – CLUE 2

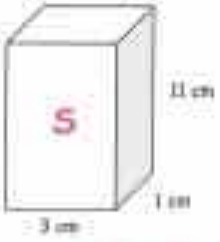
Reveal a clue about the Gremlins hideout place by working out the volume of each rectangular prism below using the volume formula V= L X W X H. Use your answers to find which letter to place inside each shape. The first one has been done for you!



Volume = 20 cm³

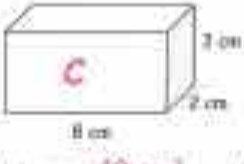


Volume = 90 cm³

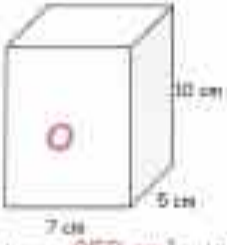


Volume = 33 cm³

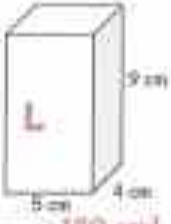
Volume = 12 cm³



Volume = 48 cm³

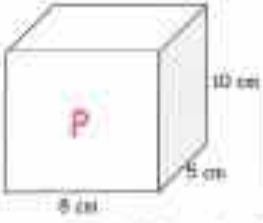


Volume = 350 cm³

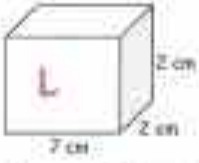


Volume = 180 cm³

Volume = 132 cm³

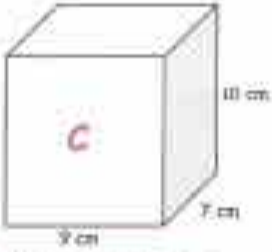


Volume = 400 cm³

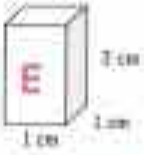


Volume = 28 cm³

Volume = 36 cm³



Volume = 630 cm³



Volume = 3 cm³

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20 cm³ = I	28 cm³ = L	36 cm³ = A
3 cm³ = E	33 cm³ = S	132 cm³ = D
12 cm³ = A	180 cm³ = L	24 cm³ = T
350 cm³ = O	90 cm³ = I	630 cm³ = C
48 cm³ = C	400 cm³ = P	

Name: _____ Case of the Graduation Gremlins Mrs J's Resource Creations ©

ANSWER SHEET– CLUE 3

In the grid below you will find a number of public statements that the police collected, however unfortunately only one of them is revealing a correct clue. Reduce the fractions to the lowest form in the list at the bottom of the page, and then look for your answer in the statement boxes and cross out that box (meaning that the statement in that box has been eliminated). The one statement box left standing after completing all of the questions, is the one with the correct clue!

Do you think that it is possible that the gremlins are hiding in the [illegible] $\frac{7}{10}$	My sister said that she saw a gang of gremlins running with a lot of the graduation [illegible] toward[illegible] Cox Yard. $\frac{3}{4}$	There has been some gossip around town that they are hiding in a medi[illegible] place south[illegible]ttan Elementary. $\frac{1}{8}$	I'd say they are probably also who are responsible for our poor Internet connection, have you [illegible] the Local IT Company? $\frac{3}{40}$
I think I saw a couple of gremlins hiding a stash [illegible]ates in a place [illegible]rthern direction. $\frac{4}{5}$	I saw this medium place that would be great [illegible] all of the it[illegible]took. $\frac{9}{10}$	They are probably lurking in one of those [illegible] places [illegible]outh. $\frac{2}{3}$	I'm pretty sure the gremlins have been med[illegible] my comp[illegible]vy night! $\frac{1}{5}$
My guess is that the gremlins are probably hidin[illegible]e place[illegible] $\frac{1}{3}$	I heard that gremlins are scared of the dark, [illegible] would[illegible]ding underground! $\frac{3}{8}$	My Aunt said that she spoke to a man w[illegible] said [illegible] he bunch[illegible] runni[illegible] gr[illegible] $\frac{1}{4}$	[illegible]d it [illegible]ding with [illegible]end[illegible]last [illegible]vent! $\frac{9}{20}$
The gremlins must be hiding underground to not be easily noticed or found with all of the items. $\frac{2}{5}$	The gremlins must be hiding in a small place[illegible] they like co[illegible]ie[illegible]paces. $\frac{6}{11}$	[illegible]fore I saw a [illegible] running into [illegible]e lo[illegible]mmy. $\frac{1}{2}$	Rumor has it that the gremlins are probably using [illegible]'s abandon[illegible] $\frac{1}{6}$

Cross off any places that are not underground.

$\frac{10}{30} = \frac{1}{3}$ $\frac{5}{40} = \frac{1}{8}$ $\frac{24}{30} = \frac{4}{5}$ $\frac{25}{50} = \frac{1}{2}$ $\frac{44}{66} = \frac{2}{3}$

$\frac{81}{108} = \frac{3}{4}$ $\frac{450}{1000} = \frac{9}{20}$ $\frac{12}{60} = \frac{1}{5}$ $\frac{36}{66} = \frac{6}{11}$ $\frac{49}{70} = \frac{7}{10}$

$\frac{40}{160} = \frac{1}{4}$ $\frac{8}{48} = \frac{1}{6}$ $\frac{900}{1000} = \frac{9}{10}$ $\frac{75}{1000} = \frac{3}{40}$ $\frac{36}{60} = \frac{3}{5}$

Name: _____ Case of the Graduation Gremlins

ANSWER SHEET– CLUE 4

Locate which letter is at each coordinate listed, and then write that letter in the empty box provided above the coordinate given. Once you have found all of the letters and arranged them into the empty boxes, a clue will be revealed! The first one has been done for you.

	A	B	C	D	E	F	G	H	I	J	K
10	S	A	W	O	D	I	N	S	H	U	V
9	E	S	D	S	A	C	R	O	S	M	F
8	P	G	T	W	J	S	F	T	L	R	O
7	F	Y	I	A	G	M	H	R	I	P	U
6	Q	T	H	K	O	C	L	A	E	L	F
5	I	B	O	E	G	I	N	P	L	N	J
4	L	U	X	F	N	A	T	M	S	R	O
3	N	E	T	R	U	Z	G	A	I	U	E
2	G	O	G	A	K	E	M	V	O	J	H
1	F	I	D	S	E	T	H	Y	P	N	O

G	R	E	M	L	I	N
(C,2)	(H,7)	(E,1)	(J,9)	(A,4)	(C,7)	(G,5)

F	O	O	T	P	R	I	N	T	S
(K,6)	(E,6)	(I,2)	(G,4)	(A,8)	(D,3)	(F,5)	(J,1)	(B,6)	(H,10)

W	E	R	E
(D,8)	(K,3)	(G,9)	(I,6)

F	O	U	N	D
(A,7)	(K,1)	(B,4)	(J,5)	(E,10)

H	E	A	D	I	N	G
(I,10)	(F,2)	(H,3)	(C,9)	(B,1)	(E,4)	(A,2)

S	O	U	T	H
(F,8)	(D,10)	(J,3)	(C,8)	(G,1)

Keep any remaining places positioned in the south.

Name: _____ Case of the Graduation Gremlins

ANSWER SHEET- CLUE 5

Discover clue 5 by correctly adding the decimals below. Locate your answer at the bottom and see what letter it matches to write in the box. The first one has been done for you!

23.1 + 22.2 = 45.3	13.04 + 21.02 = 34.06	56.3 + 31.4 = 87.7
T	H	E

43.2 + 13.6 = 56.8	19.8 + 36.1 = 55.9	63.94 + 12.51 = 76.45	10.3 + 44.93 = 55.23	76.39 + 2.55 = 78.94
P	L	A	C	E

47.75 + 42.68 = 90.43	75.6 + 17.8 = 93.4	32.64 + 11.89 = 44.53	29.75 + 24.99 = 54.74
M	U	S	T

83.79 + 19.21 = 103.00	62.22 + 16.56 = 78.78
B	E

29.9 + 45.8 = 75.7	58.3 + 33.8 = 92.1	76.84 + 5.91 = 82.75	16.78 + 74.8 = 91.58	18.26 + 6.55 = 24.81
L	A	R	G	E

27.96 + 9.45 = 37.41	38.4 + 15.3 = 53.7	70.01 + 29.57 = 99.58
F	O	R

62.68 + 15.94 = 78.62	41.9 + 29.6 = 71.5	44.5 + 35.5 = 80.00	15.99 + 7.95 = 23.94	16.3 + 31.6 = 47.9	50.14 + 25.87 = 76.01	20.95 + 61.30 = 82.25
S	T	O	R	A	G	E

The answers are jumbled up below with a letter to help crack the code!

45.3 = T
91.58 = G
103 = B
87.7 = E
23.94 = R
92.1 = A
76.01 = G
44.53 = S
55.9 = L
37.41 = F
82.25 = E
54.74 = T
76.45 = A
80 = O
78.94 = E
99.58 = R
90.43 = M
71.5 = T
55.23 = C
53.7 = O
82.7
47.9
56.8
34.0
24.8
78.7
93.4 = U

Cross off any remaining places not large. This should now leave the hideout only remaining.

Name: _____ Case of the Graduation Gremlins

HIDEOUT ELIMINATION

Hideout Place	Distance From Mathhattan Elementary School	Size	Temperature of Hideout	Positional Direction from the school	Underground Yes/NO
Apollo Island	Far	Large	Warm	West	No
Crystal Cave	Close	Large	Cold	East	No
Sewer	Close	Large	Cold	North	Yes
Abandoned Theme Park	Far	Large	Warm	South	No
Pete Paradise Hotel	Close	Large	Warm	East	No
Ghouls Chambers	Close	Medium	Cold	North	Yes
Crook's Car Yard	Far	Medium	Warm	West	No
Pepe's Pizzeria Store Room	Close	Small	Cold	North	No
Behind the Ghost Cinema Close	Far	Small	Warm	South	No
The Historical Catacombs	**Close**	**Large**	**Cold**	**South**	**Yes**
Shh Library's Basement	Close	Small	Cold	North	Yes
The Graveyard	Far	Large	Cold	East	No
Mathhattan Subway Station	Close	Medium	Warm	South	Yes
The Local IT Company	Close	Medium	Cold	South	No
Kenneth Mathhattan	Close	Small	Cold	East	Yes

On the answer sheets you will find a comment about which places need to be crossed off. Please refer to the color of the font and the color of the shaded places to show where has been crossed off from that clue.

HIDEOUT ANSWER: THE HISTORICAL CATACOMBS