

# MATH MYSTERY:

## CASE OF THE MILLENNIUM BUG

January 1, 2022

Due 1/28/2022

As the clock struck twelve into the new year last night, something catastrophic happened all over Mathhattan! Every single computer went berserk, dates flipping back prior to the year 2000 and errors constantly flashing that our current time zone does not exist. This new year digital technology issue has everyone concerned about all of their computer devices. Hear what some of the citizens had to say this new year's morning:

Sherry complained, **"I can't call anyone on my phone, let alone play an app in the waiting room while I hope to see someone that can fix it! What am I supposed to do while I wait?"**

Liam exclaimed, **"I was so close to finishing this game that I had been spending all night working on, and now all of the data stored has been wiped and I have to start AGAIN! This is a disaster!"**

Jess asked, **"Does this mean I won't have to go into the office? I won't be able to do any of my work if all of the computers are going haywire and databases are being destroyed."**

Clark whined, **"I'm just really bored! No phone, no tablet, no PlayStation, no Xbox, no PC . . . it feels like we are back in the caveman era."**

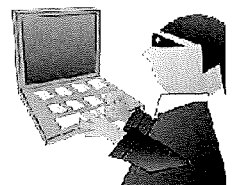
Some of Mathhattan's best Tech Gurus have been working with the MBI (Mathhattan Bureau of Investigation) to see what is going on. They reported the following information to Patrick, the Mayor, only moments ago:

**"This is what appears to be a fake Millennium Bug, a type of cyber virus that spread to all of our digital devices this New Year, even though it is not the millennium this year. Many people were concerned this disaster would actually happen back at the turn of the year 2000, where electronic software would not be able to handle the tick over out of the 1900s, also formally known as the Y2K. But this is not the New Year of 2000, and it hasn't gone global, instead this virus has only spread to all digital devices located in our town of Mathhattan. We have come to conclude that a hacker is behind this New Year cybercrime, and the only way to remove the virus is to find, arrest and force the hacker to eliminate the Millennium Bug from all of our digital software."**

The police reported that they are having a hard time figuring out who is behind this New Year cyber disaster and they are urgently requesting that a great math detective help them solve this case.

### MATH DETECTIVE NEEDED TO HELP FIND THE NEW YEAR HACKER!

Many citizens are hoping that all computer systems will be fixed soon as many places are suffering because of this terrible cyber virus. Hospitals, the military, supermarkets, restaurants and even the police are desperate to get their systems up and running properly. Please help the police find the hacker so that they can make an arrest and force the hacker to remove the Millennium Bug from all electronic software in Mathhattan!



# POSSIBLE SUSPECTS

Suspect Name	Male/ Female	Works at . ..	Specializes in . . .	Hiding in a/an. . .	Favorite Color
Raymond Apples	Male	iBanana	Programming	Attic	Blue
Sandra Messina	Female	Boggle	Websites	Basement	Purple
Chris Cayley	Male	Wahoo	Programming	Attic	Orange
Sarah Dias	Female	Boggle	Engineering	Warehouse	Orange
Gary Tang	Male	Prosoft	Websites	Attic	Purple
Simon Day	Male	iBanana	Engineering	Basement	Blue
Harry Sage	Male	Boggle	Programming	Warehouse	Orange
Arthur Maddock	Male	iBanana	Programming	Attic	Blue
Ava Romero	Female	Wahoo	Websites	Basement	Orange
Braydon Ventura	Male	Wahoo	Programming	Basement	Blue
Hersey Finn	Male	Boggle	Engineering	Attic	Purple
Kyon Eun	Female	iBanana	Engineering	Basement	Orange
David Stebbins	Male	Wahoo	Programming	Warehouse	Blue
Steve Turner	Male	Wahoo	Websites	Attic	Orange
Will Fate	Male	Prosoft	Programming	Warehouse	Blue
Lynda Thomas	Female	Wahoo	Websites	Basement	Purple
Eva Cobs	Female	iBanana	Engineering	Attic	Orange
Donald Payne	Male	Boggle	Programming	Attic	Blue

Solve the clues and then cross the suspects off the list until one remains! The last suspect remaining is the New Year Hacker that created and infected Mathhattan's digital devices with the Millennium Bug!



# AREA & PERIMETER WORD PROBLEMS – CLUE 1

Crack the code by answering the word problems. Use your answers (numbers only) 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!

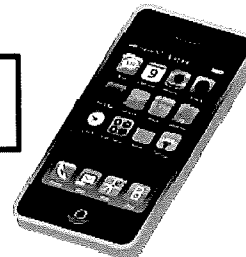
290	35	6

35	32	10	750	6	60

	S
44	28

32

100	32	18	6



A book is 5 in tall and 9 in wide. What is its perimeter? 28 inches

S

The perimeter of a square plate is 40 in. How long is each side? \_\_\_\_\_

C

An envelope is 10 in long and 6 in tall. What is its area? \_\_\_\_\_

R

A football field is 50 yd wide and 95 yd long. What is its perimeter? \_\_\_\_\_

T

A square room has an area of 36 square yards. How long is each side of the room? \_\_\_\_\_

E

A rectangular birthday card is 7 in long and 5 in wide. What is its area? \_\_\_\_\_

H

A square kitchen has sides that are 8 ft long. What is the kitchen's perimeter? \_\_\_\_\_

A

A poster is 4 ft wide and 11 ft tall. What is its area? \_\_\_\_\_

I

A basketball court is 15 yd wide and 50 yd long. What is its area? \_\_\_\_\_

K

The perimeter of a rectangular garden is 504 yd. It is 152 yd long. How wide is it? \_\_\_\_\_

M



The area of a rectangular cutting board is 180 in<sup>2</sup>. It is 10 in wide. How long is it? \_\_\_\_\_

L

Area = L x W  
P = add sides

Name: \_\_\_\_\_



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\_\_\_\_\_

**L**



# MULTIPLYING FRACTIONS BY FRACTIONS – CLUE 2

Crack the code by completing the fraction multiplication questions. Reduce (Simplify) your answers as much as possible! Use your simplified 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!

$\frac{14}{81}$	$\frac{3}{22}$	$\frac{1}{24}$	$\frac{1}{20}$

$\frac{1}{3}$	$\frac{14}{81}$	$\frac{1}{14}$	$\frac{5}{48}$	$\frac{14}{81}$	$\frac{3}{22}$	$\frac{5}{48}$

$\frac{9}{20}$	$\frac{2}{15}$	$\frac{35}{48}$	$\frac{7}{40}$

$\frac{1}{3}$	$\frac{35}{48}$	$\frac{4}{15}$	$\frac{14}{81}$	$\frac{3}{22}$	$\frac{16}{25}$

$\frac{2}{9}$	$\frac{4}{15}$	$\frac{14}{81}$	$\frac{16}{25}$	$\frac{4}{15}$	$\frac{12}{35}$	$\frac{1}{14}$	$\frac{1}{14}$	$\frac{2}{15}$	$\frac{3}{22}$	$\frac{16}{25}$

$\frac{1}{3}$	$\frac{3}{7}$	$\frac{2}{15}$	$\frac{1}{24}$	$\frac{1}{24}$	$\frac{1}{3}$

$\frac{4}{27}$	$\frac{14}{81}$	$\frac{16}{27}$	$\frac{1}{24}$	$\frac{5}{24}$

<b>B</b>	
$\frac{3}{8}$	$\frac{5}{48}$

<b>B</b>					
$\frac{3}{8}$	$\frac{5}{48}$	$\frac{7}{40}$	$\frac{2}{15}$	$\frac{3}{22}$	$\frac{5}{24}$

$\frac{35}{48}$	$\frac{7}{40}$	$\frac{2}{15}$	$\frac{1}{3}$

$$\frac{1}{2} \times \frac{3}{4} = \frac{3}{8} \quad \text{B}$$

$$\frac{1}{5} \times \frac{2}{3} = \frac{2}{15} \quad \text{I}$$

$$\frac{4}{6} \times \frac{2}{4} = \frac{8}{24} = \frac{2}{6} = \frac{1}{3} \quad \text{S}$$

$$\frac{1}{4} \times \frac{7}{10} = \frac{7}{40} \quad \text{H}$$

$$\frac{5}{12} \times \frac{1}{2} = \frac{5}{24} \quad \text{D}$$

$$\frac{8}{9} \times \frac{2}{3} = \frac{16}{27} \quad \text{U}$$

$$\frac{1}{3} \times \frac{8}{10} = \frac{8}{30} = \frac{4}{15} \quad \text{R}$$

$$\frac{1}{6} \times \frac{3}{10} = \frac{3}{60} = \frac{1}{20} \quad \text{Y}$$

$$\frac{2}{9} \times \frac{7}{9} = \frac{14}{81} \quad \text{O}$$

$$\frac{3}{5} \times \frac{9}{12} = \frac{27}{60} = \frac{9}{20} \quad \text{W}$$

$$\frac{6}{11} \times \frac{1}{4} = \frac{6}{44} = \frac{3}{22} \quad \text{N}$$

$$\frac{7}{8} \times \frac{5}{6} = \frac{35}{48} \quad \text{T}$$

$$\frac{1}{12} \times \frac{1}{2} = \frac{1}{24} \quad \text{L}$$

$$\frac{4}{5} \times \frac{3}{7} = \frac{12}{35} \quad \text{A}$$

$$\frac{1}{7} \times \frac{5}{10} = \frac{5}{70} = \frac{1}{14} \quad \text{M}$$

$$\frac{4}{6} \times \frac{2}{9} = \frac{8}{54} = \frac{4}{27} \quad \text{C}$$

$$\frac{5}{8} \times \frac{2}{12} = \frac{10}{96} = \frac{5}{48} \quad \text{E}$$

$$\frac{1}{3} \times \frac{6}{9} = \frac{6}{27} = \frac{2}{9} \quad \text{P}$$

$$\frac{3}{5} \times \frac{5}{7} = \frac{15}{35} = \frac{3}{7} \quad \text{K}$$

$$\frac{8}{10} \times \frac{4}{5} = \frac{32}{50} = \frac{16}{25} \quad \text{G}$$



# SUBTRACTING DECIMALS— CLUE 3

Crack the code by answering the subtraction questions. 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!

9.82	13.61	13.61

O	
11.86	6.29

24.81	11.36	43.15

53.25	46.8	25.49	12.92	30.05

			O	
43.15	25.49	25.49	11.86	25.49

50.62	43.15	30.05	30.05	9.82	41.19	43.15	30.05

9.82	25.49	43.15

74.44	25.49	46.8	24.81	24.81	43.15	36.58

46.8	36.58

38.3	13.61	12.92	43.15

$$\begin{array}{r} 27.41 \\ - 15.55 \\ \hline 11.86 \end{array}$$

$$\begin{array}{r} 45.82 \\ - 4.63 \\ \hline \end{array}$$

$$\begin{array}{r} 68.3 \\ - 21.5 \\ \hline \end{array}$$

$$\begin{array}{r} 17.94 \\ - 8.12 \\ \hline \end{array}$$

$$\begin{array}{r} 54.39 \\ - 3.77 \\ \hline \end{array}$$

$$\begin{array}{r} 60.19 \\ - 48.83 \\ \hline \end{array}$$

$$\begin{array}{r} 75.99 \\ - 32.84 \\ \hline \end{array}$$

O

G

I

A

M

H

E

$$\begin{array}{r} 84.29 \\ - 9.85 \\ \hline \end{array}$$

$$\begin{array}{r} 39.80 \\ - 9.75 \\ \hline \end{array}$$

$$\begin{array}{r} 84.76 \\ - 31.51 \\ \hline \end{array}$$

$$\begin{array}{r} 34.17 \\ - 8.68 \\ \hline \end{array}$$

$$\begin{array}{r} 95.2 \\ - 56.9 \\ \hline \end{array}$$

$$\begin{array}{r} 33.83 \\ - 27.54 \\ \hline \end{array}$$

$$\begin{array}{r} 65.88 \\ - 52.96 \\ \hline \end{array}$$

W

S

V

R

B

F

U

$$\begin{array}{r} 57.97 \\ - 21.39 \\ \hline \end{array}$$

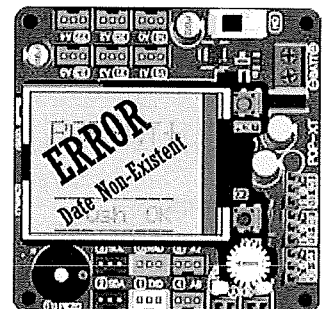
$$\begin{array}{r} 20.86 \\ - 7.25 \\ \hline \end{array}$$

$$\begin{array}{r} 36.41 \\ - 11.60 \\ \hline \end{array}$$

N

L

T





# DIVISION – CLUE 4

Below are different statements by some of the Tech Gurus working on the case with you. However, only one of them has discovered the correct information. Complete the division questions below, and then look for that number 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!

I'm picking up that origins of the Millenium Bug are coming from the iBanana building.	Based on the data I have just found, the New Year Hacker is probably hiding in an attic somewhere.	Some of the code I found reveals that the New Year Hacker might be working from a warehouse.	Rumor has it in a chat room that the Millenium Bug was planted by someone who works at Prosoft.
<b>20</b>	<b>25</b>	<b>30</b>	<b>2</b>
Traces of the Millennium Bug are coming from the Wahoo Building.	I found some evidence on my system that suggests that the New Year Hacker must be lurking inside a basement	Will fate is extremely clever, my bet is that he is behind the creation of the Millennium Bug.	I decrypted some code that suggests that the New Year Hacker works at Boggle.
<b>4</b>	<b>14</b>	<b>5</b>	<b>24</b>
I'm starting to think it's a bunch of gremlins hiding inside a warehouse meddling with some of Mathhattan's servers.	Donald Payne programmed a fantastic program recently. Maybe the Millennium Bug was a mistake that accidentally resulted from the program?	I'm tracking some signals coming from a nearby attic, that could be where the New Year Hacker is keeping the Millennium Bug files.	I've tried turning the systems on and off again, but I'm getting nothing. Maybe this is all part of a large plan created by all four major Mathhattan IT companies.
<b>16</b>	<b>12</b>	<b>7</b>	<b>3</b>

Complete the division questions below. Find your answer in a statement box above and cross out that statement. The last box remaining contains the correct information!

$$15 \overline{) 45}$$

$$11 \overline{) 176}$$

$$20 \overline{) 500}$$

$$13 \overline{) 65}$$

$$12 \overline{) 168}$$

$$17 \overline{) 34}$$

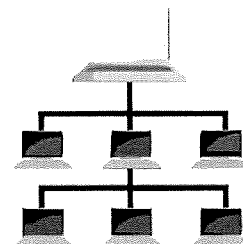
$$22 \overline{) 264}$$

$$25 \overline{) 750}$$

$$14 \overline{) 98}$$

$$16 \overline{) 320}$$

$$31 \overline{) 744}$$





# MULTIPLICATION – CLUE 5

After solving Clue 4, the MBI go with you to investigate your new discovery further. Crack the code by completing the multiplication questions. Use the your answers to match and place the letters in the boxes to reveal a 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! *(Tip: You may need to work out your answers on a spare piece of paper).*

19,200	8,525	8,990	11,322	8,990	8,228	5,194	12,132



					<b>G</b>	
5,194	19,200	11,322	12,132	7,880	4,884	8,990

		<b>G</b>			
5,194	8,228	4,884	7,880	12,132	21,888

					<b>G</b>
2,954	40,750	13,390	8,228	7,880	4,884

12,555	11,322	40,750	13,390

19,200	8,525	8,990

36,900	12,132	11,322	8,990	8,525	40,750	7,448	5,194	8,990

$$\begin{array}{r} 407 \\ \times 12 \\ \hline 4,884 \end{array}$$

<b>G</b>
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$$\begin{array}{r} 211 \\ \times 14 \\ \hline \end{array}$$

<b>C</b>
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$$\begin{array}{r} 394 \\ \times 20 \\ \hline \end{array}$$

<b>N</b>
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$$\begin{array}{r} 106 \\ \times 49 \\ \hline \end{array}$$

<b>S</b>
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$$\begin{array}{r} 674 \\ \times 18 \\ \hline \end{array}$$

<b>A</b>
----------

$$\begin{array}{r} 515 \\ \times 26 \\ \hline \end{array}$$

<b>M</b>
----------

$$\begin{array}{r} 748 \\ \times 11 \\ \hline \end{array}$$

<b>I</b>
----------

$$\begin{array}{r} 145 \\ \times 62 \\ \hline \end{array}$$

<b>E</b>
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$$\begin{array}{r} 837 \\ \times 15 \\ \hline \end{array}$$

<b>F</b>
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$$\begin{array}{r} 815 \\ \times 50 \\ \hline \end{array}$$

<b>O</b>
----------

$$\begin{array}{r} 392 \\ \times 19 \\ \hline \end{array}$$

<b>U</b>
----------

$$\begin{array}{r} 240 \\ \times 80 \\ \hline \end{array}$$

<b>T</b>
----------

$$\begin{array}{r} 456 \\ \times 48 \\ \hline \end{array}$$

<b>L</b>
----------

$$\begin{array}{r} 155 \\ \times 55 \\ \hline \end{array}$$

<b>H</b>
----------

$$\begin{array}{r} 900 \\ \times 41 \\ \hline \end{array}$$

<b>W</b>
----------

$$\begin{array}{r} 153 \\ \times 74 \\ \hline \end{array}$$

<b>R</b>
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