



Math Virtual Learning

# HS/Essential Math II

**May 4, 2020**



## High School/Essentials of Algebra Course 2

Lesson: May 4, 2020(U4L2)

### **Objective/Learning Target:**

Understand the behavior of multiplication with signed terms as an extension of number line patterns.

**Do  
Now:**

MysteryGrid **1, 2, 3, 4**

4,•	5,+	8,•	
		9,•	
3,+			8,•
12,•			

# DO NOW ANSWER

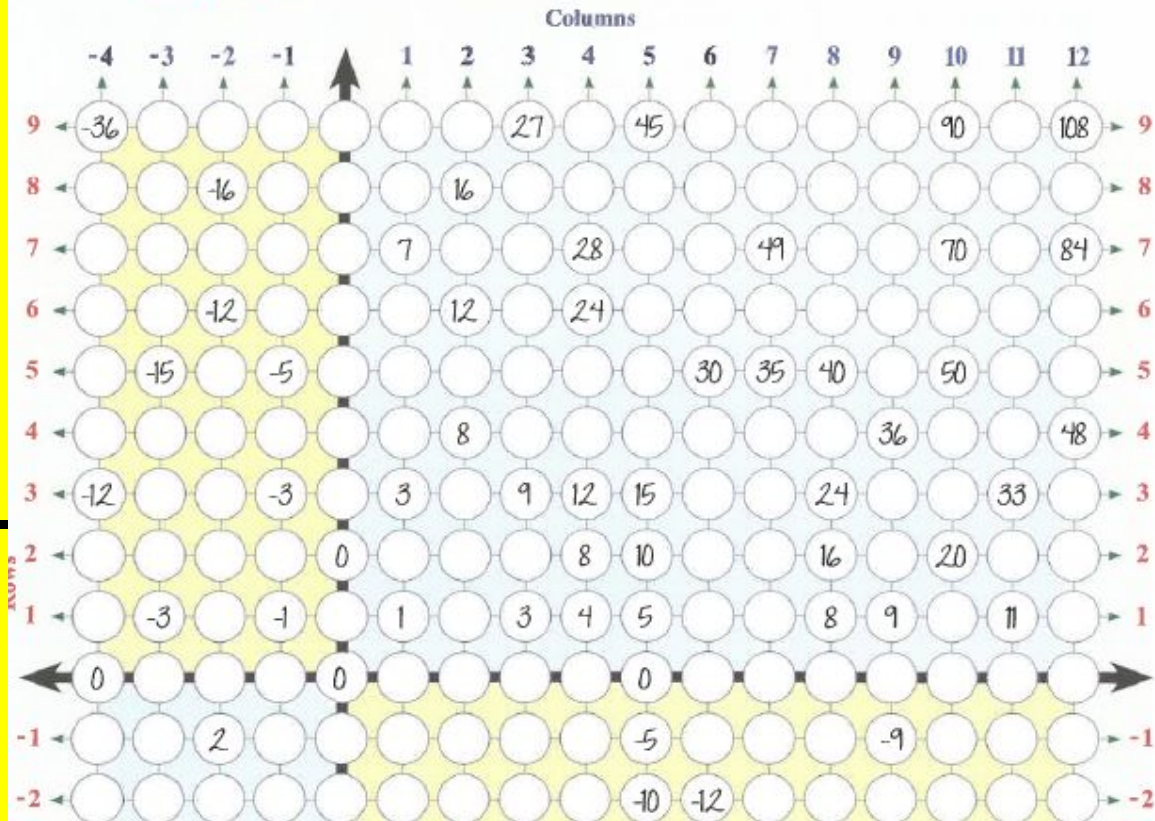
MysteryGrid **1, 2, 3, 4**

4,• 1	5,+ 3	8,• 4	2
4	2	9,• 1	3
3,+ 2	1	3	8,• 4
12,• 3	4	2	1

# Lesson

- Fill in the blue section of **row 2** in this multiplication table.  
Then follow the pattern backward to fill in the yellow section in **row 2**.
- Repeat this process for **row 3**.
- Use multiplication to fill in the yellow section of **column -2**.  
Then follow the pattern down to fill in the blue section in **column -2**.
- Repeat this process for **columns 1 and 5** starting in the blue section and going down into the yellow section.
- Choose **one negative row** to complete using the patterns in the table.

Use the patterns in the table  
(not a calculator) to fill in the  
products you don't already know.



# Answers

Columns

Rows

	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
9	-36	-27	-18	-9	0	9	18	27	36	45	54	63	72	81	90	99	108
8	-32	-24	-16	-8	0	8	16	24	32	40	48	56	64	72	80	88	96
7	-28	-21	-14	-7	0	7	14	21	28	35	42	49	56	63	70	77	84
6	-24	-18	-12	-6	0	6	12	18	24	30	36	42	48	54	60	66	72
5	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60
4	-16	-12	-8	-4	0	4	8	12	16	20	24	28	32	36	40	44	48
3	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30	33	36
2	-8	-6	-4	-2	0	2	4	6	8	10	12	14	16	18	20	22	24
1	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1	4	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
-2	8	6	4	2	0	-2	-4	-6	-8	-10	-12	-14	-16	-18	-20	-22	-24

# lesson

⑥ Find the number at the following locations.

Ⓐ column 12, row 2

Ⓑ column -3, row 8

Ⓒ (-4, -6)

Ⓓ (12, -2)

⑦ Where would 24 be in the multiplication table?

Column	3				
Row	8				

⑧ Where would -12 be in the multiplication table?

Column	6				
Row	-2				

⑨ Circle the sign of the number at the following locations.

Ⓐ column 5, row -4

+ or -

Ⓑ column 8, row 4

+ or -

Ⓒ (-2, 10)

+ or -

Ⓓ (-5, -6)

+ or -

Ⓔ (12, -9)

+ or -

# Answers

⑥ Find the number at the following locations.

- (a) **column 12, row 2**  $24$     (b) **column -3, row 8**  $-24$     (c) **(-4, -6)**  $24$     (d) **(12, -2)**  $-24$   
 $(12)(2) = 24$      $(-3)(8) = 24$      $(-4)(6) = 24$      $(12)(-2) = -24$

⑦ Where would 24 be in the multiplication table?

<b>Column</b>	3	6	-4	12	8
<b>Row</b>	8	4	-6	2	3

(Responses Will vary.)

⑧ Where would -12 be in the multiplication table?

<b>Column</b>	6	-4	2	-3	12
<b>Row</b>	-2	3	-6	4	-1

⑨ Circle the sign of the number at the following locations.

- (a) **column 5, row -4**    (b) **column 8, row 4**    (c) **(-2, 10)**    (d) **(-5, -6)**    (e) **(12, -9)**  
 + or  -     + or -    + or  -     + or -    + or  -

$(5)(-4) = -20$      $(8)(4) = 32$      $(-2)(10) = -20$      $(-5)(-6) = 30$      $(12)(-9) = -108$



# Stuff to Make You Think

Who Am I?

- The product of my digits is a square number.
- The product of my digits is one less than twice a square number.
- $t + u > 2$

$t$	$u$
<input type="text"/>	<input type="text"/>

**REMEMBER:**  
the square of a number  
is product of a number  
times itself,

Ex:  $5^2 = 25$  and  $8^2 = 64$

Who Am I?

- I am odd.
- I am a multiple of 5.
- $t > u$
- My tens digit is a perfect square.
- $h = u - 3$

$h$	$t$	$u$
<input type="text"/>	<input type="text"/>	<input type="text"/>

Who Am I?

- I am a multiple of 6.
- $t = 2u$
- I am between  $5^2$  and  $8^2$ , but I am not a perfect square.

$t$	$u$
<input type="text"/>	<input type="text"/>

Who Am I?

- The sum of my digits is 8.
- The product of my digits is 16.

$t$	$u$
<input type="text"/>	<input type="text"/>

# ANSWERS

Who Am I?

- The product of my digits is a square number.

$t$	$u$
7	7

- The product of my digits is one less than twice a square number.
- $t + u > 2$

Who Am I?

- I am odd.
- I am a multiple of 5.
- $t > u$
- My tens digit is a perfect square.
- $h = u - 3$

$h$	$t$	$u$
2	9	5

Who Am I?

- I am a multiple of 6.
- $t = 2u$
- I am between  $5^2$  and  $8^2$ , but I am not a perfect square.

$t$	$u$
4	2

Who Am I?

- The sum of my digits is 8.
- The product of my digits is 16.

$t$	$u$
4	4

# Additional Practice

**I** MysteryGrid **1, 2, 3**

2	3,•	
6,+		
	6,•	

**J** MysteryGrid **4, 5, 6**

20,•		30,•
15,+		
	24,•	

**K** MysteryGrid **2, 3, 5**

20,•		10,+
	45,•	

# Answers Additional Practice

I

MysteryGrid 1, 2, 3

2	3,•	
2	1	3
6,+		
3	2	1
	6,•	
1	3	2

J

MysteryGrid 4, 5, 6

20,•		30,•
4	5	6
15,+		
6	4	5
	24,•	
5	6	4

K

MysteryGrid 2, 3, 5

20,•		10,+
5	2	3
	45,•	
2	3	5
3	5	2



## Mystery Grids

**Lesson: May 4, 2020 (U4L2)**

**You have**

- **Built your working memory & the ability to coordinate multiple constraints.**
- **Sharpened familiarity with properties of numbers & operations**
- **Sharpened arithmetic skills (recognizing multiples, factors, etc.)**

**For additional practice, click the link: [Solve Me Mystery Grids](#)**