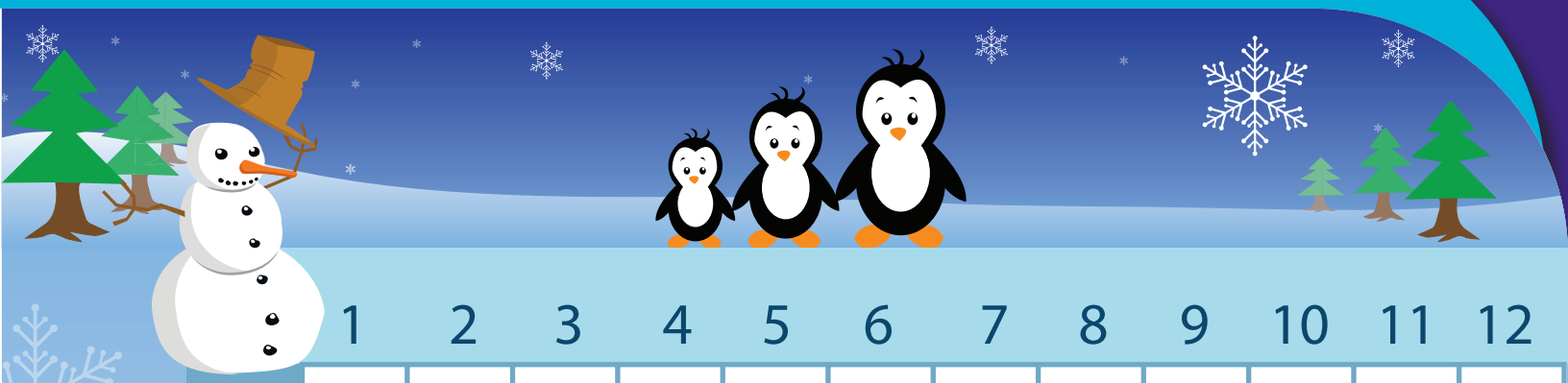
Winter

MULTIPLICATION STRATEGIES

3RD Grade



	1	2	3	4	5	6	7	8	9	10	11	12
1							7					
2		4									22	
3				12								
4									36			
5						30						
6			18									
7					35			56				
8	8									80		
9												

Table of Contents

Winter Multiplication Strategies

** Has an Answer Sheet*

Multiplication Table

The 12x12 multiplication table can be very useful for finding patterns in the times tables. Here are some ways that you can use the table to help you start memorizing.

- Highlight the 5s tables in yellow. What do you notice about those numbers?
- Highlight the 10s tables in pink. What do you notice about those numbers?
- Put a red circle around the 11s tables. What do you notice about those numbers?
- Are there any other patterns you can find in this table?

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Addition & Multiplication

Multiplication is not so different from addition.
For example: 4 + 4 + 4 = 12 is the same as 4 three times = 12 or 4 x 3 = 12
Now you try! Complete each addition equation and write the multiplication equation that matches it.

1	8 + 8 + 8 = ___	3 x 8 = ___
2	10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = ___	10 x 10 = ___
3	6 + 6 + 6 + 6 + 6 = ___	5 x 6 = ___
4	1 + 1 + 1 + 1 = ___	4 x 1 = ___
5	7 + 7 + 7 + 7 + 7 + 7 = ___	6 x 7 = ___
6	4 + 4 + 4 + 4 + 4 + 4 + 4 = ___	7 x 4 = ___
7	9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = ___	9 x 9 = ___
8	1 + 1 = ___	2 x 1 = ___
9	2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = ___	8 x 2 = ___
10	3 + 3 + 3 + 3 + 3 = ___	5 x 3 = ___
11	9 + 9 + 9 + 9 + 9 = ___	___ x ___ = ___
12	7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = ___	___ x ___ = ___
13	10 + 10 + 10 + 10 = ___	___ x ___ = ___
14	2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = ___	___ x ___ = ___
15	8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = ___	___ x ___ = ___
16	11 + 11 + 11 = ___	___ x ___ = ___
17	12 + 12 = ___	___ x ___ = ___

Addition & Multiplication

Complete the addition number sentence and the related multiplication number sentence.

1. 

   ____+____+____=____ ___x___=___

2. 

   ____+____+____+____=____ ___x___=___

3. 

   ____+____+____+____=____ ___x___=___

4. 

   ____+____+____+____=____ ___x___=___

5. 

   ____+____+____+____=____ ___x___=___

6.

   ____+____+____+____+____+____=____ ___x___=___

7. 

   ____+____+____=____ ___x___=___

   ____+____+____+____+____=____ ___x___=___

Zeros and Ones

Though you may think of the 0 and 1 times tables as the "easy" times tables, it is important to understand the concept behind them. For instance, why does 5 + 0 = 5 but 5 x 0 = 0? Let's draw a picture to help.

5 + 0 → five  PLUS zero + = 

How would you draw five groups of zero?

5 x 0 → =

Five groups of zero, or zero groups of five, means **no** groups at all!

Now let's try this same exercise with the 1s.

Draw a picture to for this equation

5 + 1 = 6

Now draw five groups of one (or one group of five) 5 x 1 = 5

Let's Practice Zeros and Ones

Complete the equations.

12 + 1 = ____	9 + 1 = ____	2 + 1 = ____
8 x 1 = ____	2 x 1 = ____	9 x 1 = ____
12 + 0 = ____	8 + 0 = ____	1 + 0 = ____
2 x 0 = ____	12 x 0 = ____	8 x 0 = ____
1 + 1 = ____	3 + 1 = ____	4 + 1 = ____
4 x 1 = ____	10 x 1 = ____	1 x 1 = ____
9 + 0 = ____	11 + 0 = ____	4 + 0 = ____
10 x 0 = ____	1 x 0 = ____	5 x 0 = ____
6 + 1 = ____	10 + 1 = ____	8 + 1 = ____
11 x 1 = ____	3 x 1 = ____	12 x 1 = ____
10 + 0 = ____	6 + 0 = ____	2 + 0 = ____
11 x 0 = ____	7 x 0 = ____	9 x 0 = ____

Multiply by 2

Knowing and memorizing your doubles can be a big help when it comes time to multiplying larger numbers. You probably already know how to skip count by two. Let's practice.

Count by 2s out loud as high as you can go. Write out your progress on the line.

_____

Did you run out of room on the page before you couldn't go any further?

Now let's draw pictures to help us remember our 2s tables.

2 x 1 – what comes in one pair of 2? *(pair of shoes)*

2 x 2 – what comes in two pairs of 2? *(dog's legs)*

2 x 3 – what comes in two pairs of 3? *(bug's legs)*

2 x 4 – what comes in two pairs of 4? *(spider's legs)*

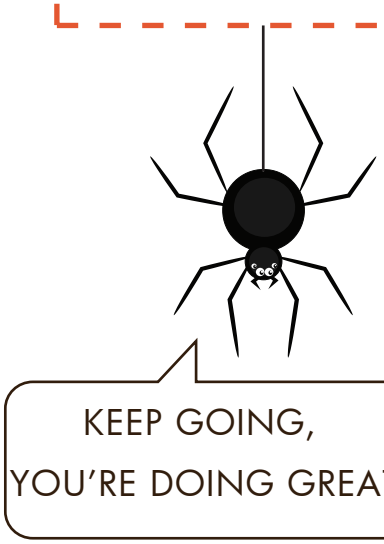
2 x 5 – what comes in two pairs of 5? *(fingers on each hand)*

Let's Multiply by 2

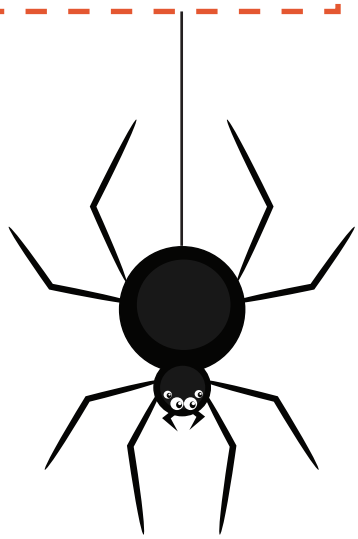
Draw a picture to represent each times table.

2 x 6

2 x 7



2 x 8



2 x 9

2 x 10

Times Tables Practice

Practice your times tables. Use any strategies you like, but be sure to show your work if you do! If you think you've got the hang of it, try putting 1 minute on the clock and see how many you can solve in one minute.

1 x 5 = ____	0 x 3 = ____	1 x 4 = ____	2 x 5 = ____	3 x 5 = ____
5 x 2 = ____	2 x 4 = ____	3 x 2 = ____	5 x 5 = ____	3 x 4 = ____
0 x 2 = ____	5 x 0 = ____	3 x 3 = ____	5 x 4 = ____	2 x 3 = ____
1 x 1 = ____	2 x 2 = ____	1 x 2 = ____	0 x 5 = ____	1 x 3 = ____
2 x 1 = ____	0 x 3 = ____	4 x 6 = ____	3 x 9 = ____	1 x 6 = ____
4 x 2 = ____	5 x 5 = ____	3 x 7 = ____	2 x 8 = ____	3 x 4 = ____
2 x 0 = ____	5 x 6 = ____	2 x 6 = ____	5 x 6 = ____	4 x 9 = ____
4 x 1 = ____	4 x 7 = ____	5 x 7 = ____	4 x 8 = ____	3 x 7 = ____
1 x 8 = ____	3 x 0 = ____	4 x 1 = ____	2 x 7 = ____	3 x 9 = ____
0 x 9 = ____	2 x 8 = ____	3 x 8 = ____	x 5 = ____	5 x 3 = ____

Break Down Strategy

When the bigger times tables stump you, it's okay to "break down" the equation into something more manageable. For example, here is a great strategy to use with the 7s tables.

7s Strategy

If the 7s times tables are tough for you, try...
Times 7 = Times 5 + Times 2

Example: 7 x 8
I know (5 x 8) and (2 x 8)
40 + 16 = 56

Now you try! Show your work.

7 x 9 = ____ 7 x 6 = ____ 7 x 12 = ____ 7 x 7 = ____

What are some other ways that you can break down equations?

9 x 8 = ____
(x) + (x) = ___

7 x 6 = ____
(x) + (x) = ___

12 x 5 = ____
(x) + (x) = ___

11 x 5 = ____
(x) + (x) = ___

Times Tables: Break it Down

Practice your times tables. If you come across one you don't have memorized, use the "break down" strategy to help you figure it out! Show your work.

7 x 9 = _____	6 x 5 = _____	10 x 5 = _____	11 x 3 = _____	9 x 5 = _____
8 x 6 = _____	10 x 8 = _____	9 x 7 = _____	7 x 4 = _____	8 x 8 = _____
4 x 10 = _____	5 x 11 = _____	6 x 6 = _____	8 x 9 = _____	9 x 9 = _____
10 x 9 = _____	8 x 7 = _____	6 x 9 = _____	12 x 9 = _____	11 x 11 = _____
7 x 7 = _____	9 x 3 = _____	8 x 10 = _____	12 x 5 = _____	8 x 11 = _____

Multiply by 9: Strategies

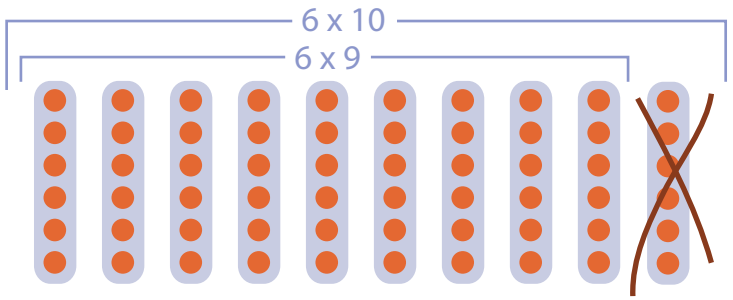
Solve the 9s times tables below.

9 x 1 = ____	9 x 4 = ____	9 x 7 = ____	9 x 10 = ____
9 x 2 = ____	9 x 5 = ____	9 x 8 = ____	9 x 11 = ____
9 x 3 = ____	9 x 6 = ____	9 x 9 = ____	9 x 12 = ____

Do you notice anything interesting about the products of all of the 9s tables?
You may have noticed that all the digits of each product add up to equal 9!

There are many different strategies for solving 9s tables. One strategy that many students find helpful is to multiply by 10 first...

6 x 9 ⇨ (6 x 10) – 6 ⇨ 60 – 6 = 54



Try this strategy!

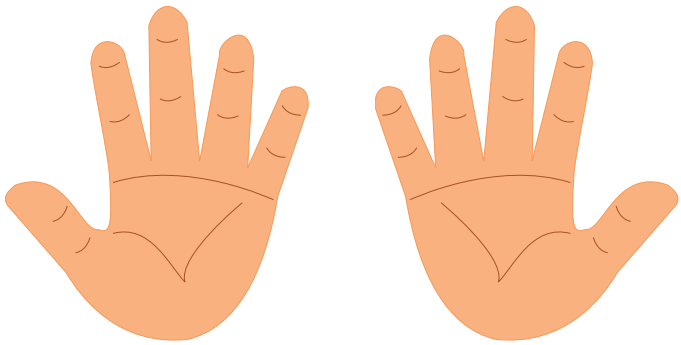
7 x 9 = ____ 9 x 9 = ____ 4 x 9 = ____ 8 x 9 = ____ 3 x 9 = ____

Multiply by 9: Use Your Hands!

For 1x9 through 9x9, use your hands to show you the answers.

1. Hold your hands in front of you with your fingers spread out.
2. For 9 X 3 bend your third finger down. (9 X 4 would be the fourth finger etc.)
3. You have 2 fingers in front of the bent finger and 7 after the bent finger.
4. Thus the answer must be 27.

1



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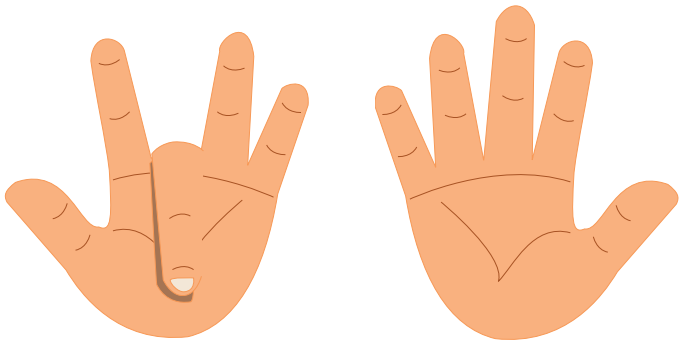

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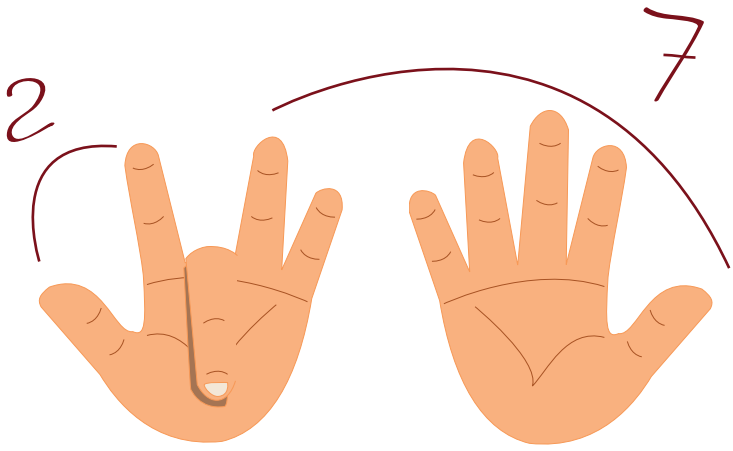


9 x 1 = _____

9 x 2 = _____

9 x 3 = _____

9 x 4 = _____

9 x 5 = _____

9 x 6 = _____

9 x 7 = _____

9 x 8 = _____

9 x 9 = _____

Multiply by 11 Tricks

What is the pattern for multiplying 1x11 through 9x11?

_____

_____

Whatever number is being multiple will go in the tens place and in the ones place.

Here's a fun way to multiply ANY two-digit number by 11.

Let's multiply 11 by 18. First, jot down 1 and 8 with a space between it. 1__8.
Add the 8 and the 1 and put that number in the middle: 1 9 8
If the number adds to equal 10... for example in 11 x 73 7 10 3, carry the 1 add it to the 7, so your final answer will be 8 0 3.

Try a few problems using this strategy. Show your work.

11 x 19 = _____ 11 x 36 = _____ 11 x 22 = _____

11 x 55 = _____ 11 x 14 = _____ 11 x 11 = _____

11 x 17 = _____ 11 x 42 = _____ 11 x 77 = _____

Multiply by 12

Let's practice the 12 times tables. Use any strategy that helps you.

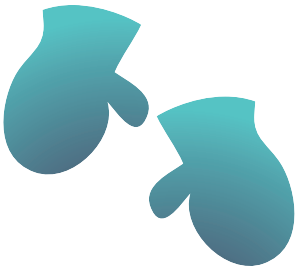
12 x 1 = ____	12 x 10 = ____	12 x 5 = ____
12 x 8 = ____	7 x 9 = ____	12 x 7 = ____
12 x 11 = ____	12 x 6 = ____	12 x 12 = ____
12 x 3 = ____	12 x 9 = ____	12 x 2 = ____

Multiplication Word Problems

Practice solving multiplication word problems.

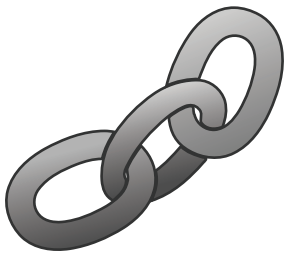
Andrea is watching snowflakes fall. She notices that every snowflake has 6 points. If she catches 7 snowflakes in her hand, how many points does she catch altogether?

Jesse is teaching snowboarding lessons to 4 different groups today. If there are 8 kids in each group, how many kids does Jesse teach in all today?



The 12 children in Miss Martha's class are going sledding today! How many mittens are there (not including Miss Martha)? *BONUS: How many boots and mittens are there in all?*

Uh oh, the road is too icy! Time to put on chains. If there are 9 cars waiting in line to get chains put on, and they all need chains on all of their tires, how many chains are put on in total?



Peter has been on 5 chairlifts at the ski slopes today. If he sat with 4 people on each lift, how many people did he sit with today?

Times Tables Practice

Practice your times tables. Use any strategies you like, but be sure to show your work if you do! If you think you've got the hang of it, try putting 1 minute on the clock and see how many you can solve in one minute.

1 x 5 = ___	11 x 11 = ___	6 x 3 = ___	2 x 9 = ___	8 x 3 = ___
10 x 6 = ___	9 x 8 = ___	5 x 2 = ___	7 x 8 = ___	3 x 5 = ___
12 x 7 = ___	10 x 8 = ___	11 x 3 = ___	4 x 6 = ___	7 x 3 = ___
0 x 9 = ___	2 x 7 = ___	3 x 10 = ___	8 x 11 = ___	4 x 12 = ___
7 x 6 = ___	0 x 5 = ___	9 x 4 = ___	2 x 10 = ___	11 x 5 = ___
12 x 4 = ___	8 x 8 = ___	1 x 11 = ___	10 x 4 = ___	7 x 12 = ___
0 x 6 = ___	8 x 6 = ___	2 x 4 = ___	10 x 10 = ___	3 x 7 = ___
7 x 4 = ___	1 x 8 = ___	9 x 6 = ___	3 x 8 = ___	11 x 9 = ___
6 x 7 = ___	8 x 4 = ___	4 x 8 = ___	11 x 7 = ___	3 x 3 = ___
1 x 5 = ___	5 x 5 = ___	9 x 1 = ___	5 x 7 = ___	6 x 12 = ___

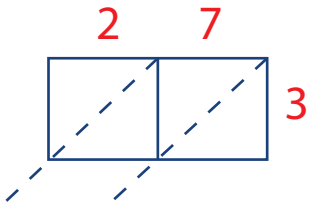
Let's Do Lattice Multiplication

Another way to figure out multiplication problems is with the use of a lattice. Remember: The number with the most digits determines the columns, and the number with the least amount of digits determines the rows.

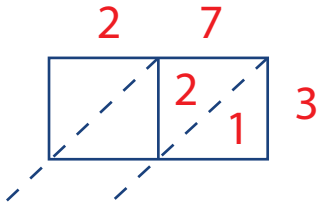
For example let's try: 3 x 27 = ____

1. 

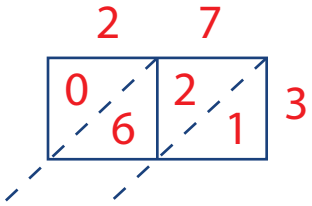
Draw a rectangle and divide it in half.



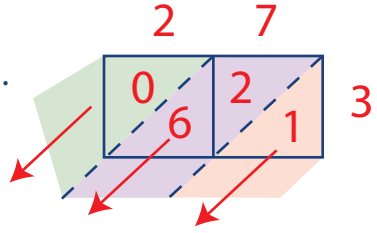
Place your numbers on the sides of the lattice. Draw diagonals at the corners.

2. 

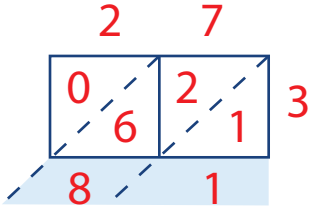
Multiply the ones place:
3 x 7 = 21
Place the answer in the first set of triangles.



Multiply the tens place: 3 x 2 = 6
Place a 0 in the tens place triangle. Place your answer in the ones place triangle.

3. 

Now add diagonally.



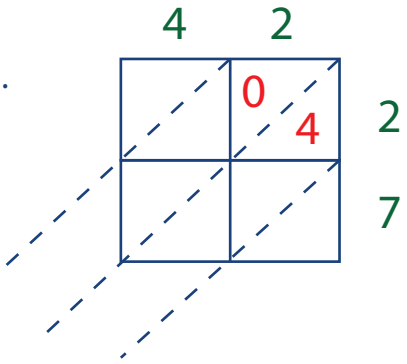
Your answer is 81.

Let's Do Lattice Multiplication

Let's do double digit lattice multiplication. Remember the number with the most digits determines the columns and the number with the least amount of digits determines the rows. With double digits we have 4 numbers so we need four boxes.

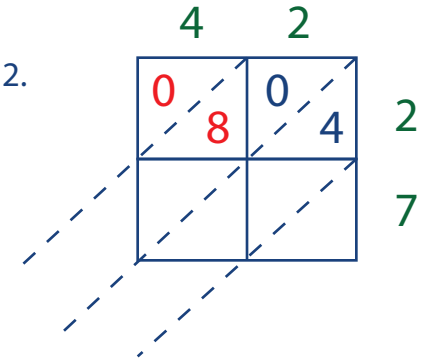
For example let's try: 42 x 27 = ___

1.



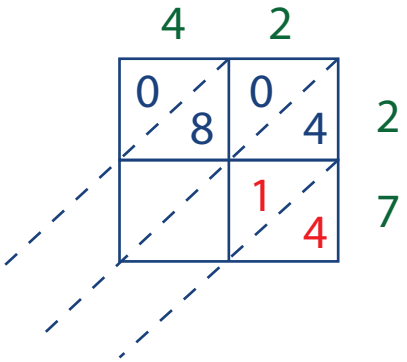
Each triangle in the square gets its own digit. If the answer is a single digit, put 0 in the first triangle.

2.



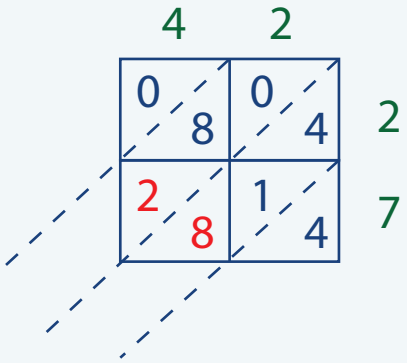
Multiply each single digit on the right side by the single digits on the top.

3.

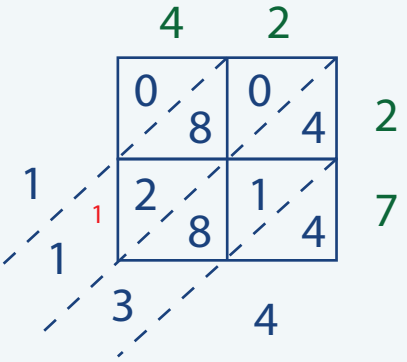


Do the same for the rest of your lattice.

4.



5.



Finish by adding up the numbers diagonally, starting at the bottom left corner.

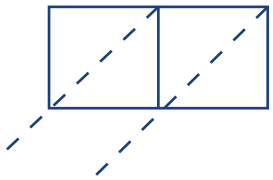
**Remember to carry the ones!*

Your answer is 1134.

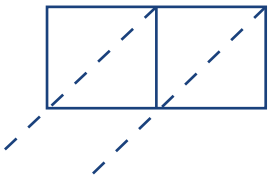
Lattice Multiplication Practice

Let's practice some lattice multiplication.

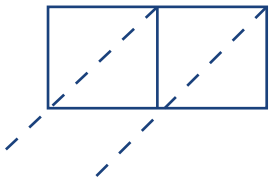
1. 11 x 4 = _____



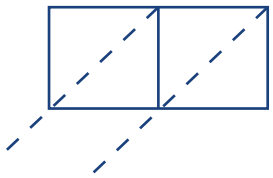
2. 20 x 2 = _____



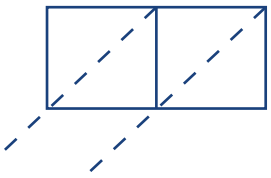
3. 33 x 3 = _____



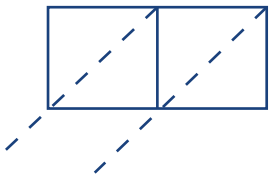
4. 22 x 5 = _____



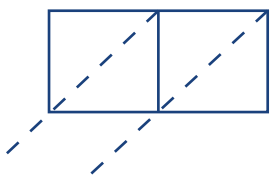
5. 67 x 2 = _____



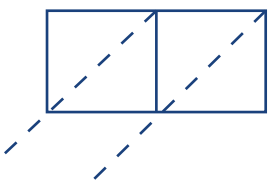
7. 45 x 6 = _____



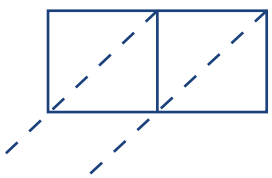
7. 53 x 9 = _____



8. 79 x 8 = _____



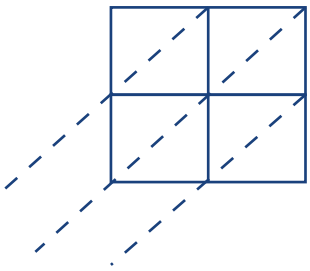
9. 39 x 7 = _____



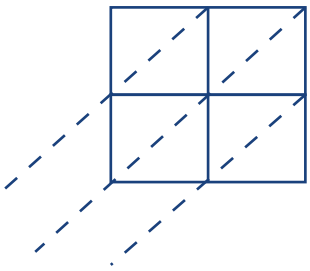
Lattice Multiplication Practice

Let's do double digit lattice multiplication.

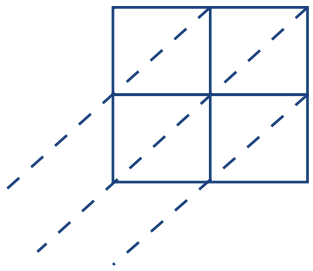
1. 10 x 14 = _____



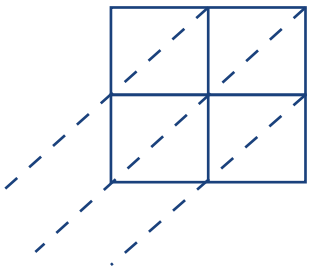
2. 15 x 12= _____



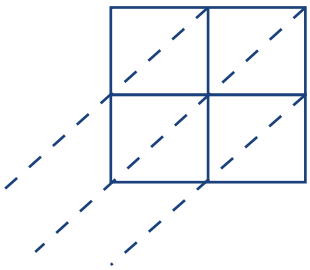
3. 17 x 19 = _____



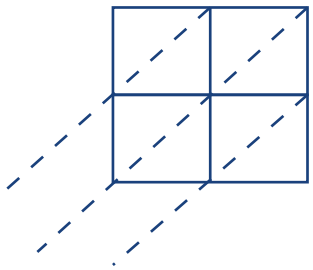
4. 25 x 18 = _____



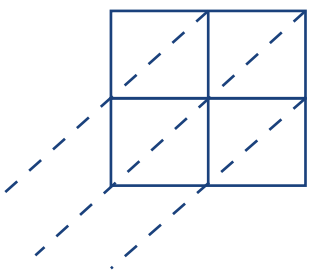
5. 35 x 15 = _____



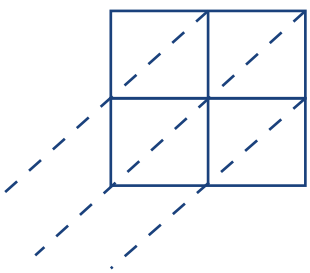
7. 45 x 32 = _____



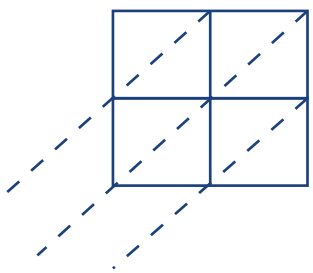
7. 63 x 45 = _____



8. 81 x 56 = _____



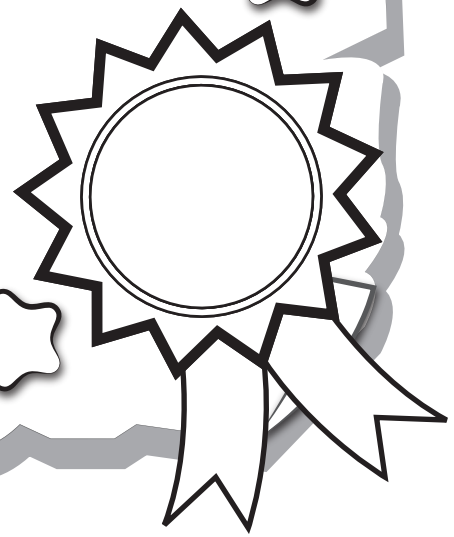
9. 95 x 71 = _____



Great job!

_____

is an Education.com math superstar



Answer Sheets

Winter Multiplication Strategies

Multiply by 11 Tricks
Multiplication Word Problems
Lattice Multiplication Practice #1
Lattice Multiplication Practice #2

Answer Sheet

Multiply by 11 Tricks

What is the pattern for multiplying 1x11 through 9x11?

Whatever number is being multiplied will go in the tens place and in the ones place.

Here's a fun way to multiply ANY two-digit number by 11.

Let's multiply 11 by 18. First, jot down 1 and 8 with a space between it. 1__8.
Add the 8 and the 1 and put that number in the middle: 1 9 8
If the number adds to equal 10... for example in 11 x 73 7 10 3, carry the 1 add it to the 7, so your final answer will be 8 0 3.

Try a few problems using this strategy. Show your work.

11 x 19 = 209

1 10 9
2 0 9

11 x 36 = 396

3 9 6

11 x 22 = 242

2 4 2

11 x 55 = 605

5 10 5
6 0 5

11 x 14 = 154

1 5 4

11 x 11 = 121

1 2 1

11 x 17 = 187

1 8 7

11 x 42 = 462

4 6 2

11 x 77 = 847

7 14 7
8 4 7

Answer Sheet

Multiplication Word Problems

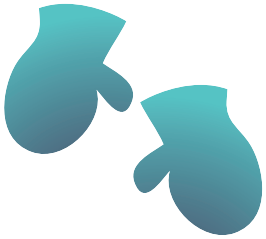
Practice solving multiplication word problems.

Andrea is watching snowflakes fall. She notices that every snowflake has 6 points. If she catches 7 snowflakes in her hand, how many points does she catch altogether?

6 points x 7 snowflakes = 42 points

Jesse is teaching snowboarding lessons to 4 different groups today. If there are 8 kids in each group, how many kids does Jesse teach in all today?

4 groups x 8 kids = 32 kids in all



The 12 children in Miss Martha's class are going sledding today! How many mittens are there (not including Miss Martha)? *BONUS: How many boots and mittens are there in all?*

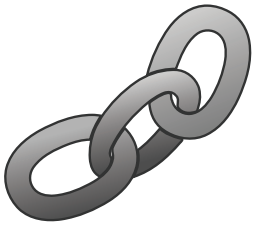
12 children x 2 mittens each = 24 mittens

BONUS: 12 x 2 = 24 boots

24 + 24 = 48 boots and mittens

Uh oh, the road is too icy! Time to put on chains. If there are 9 cars waiting in line to get chains put on, and they all need chains on all of their tires, how many chains are put on in total?

9 cars x 4 tires = 36 chains total



5 lifts x 4 people = 20 people total

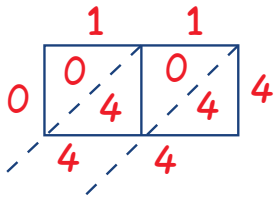
Peter has been on 5 chairlifts at the ski slopes today. If he sat with 4 people on each lift, how many people did he sit with today?

Answer Sheet

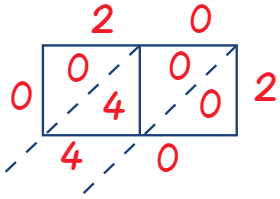
Lattice Multiplication Practice

Let's practice some lattice multiplication.

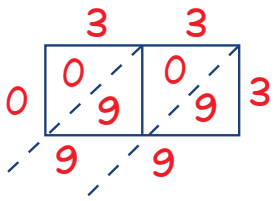
1. 11 x 4 = 44



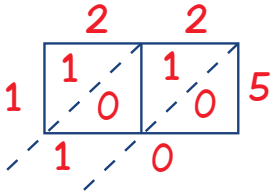
2. 20 x 2 = 40



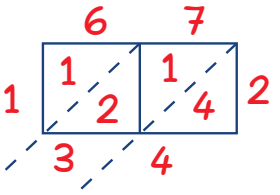
3. 33 x 3 = 99



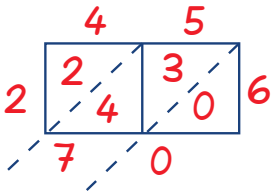
4. 22 x 5 = 110



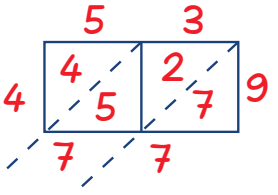
5. 67 x 2 = 134



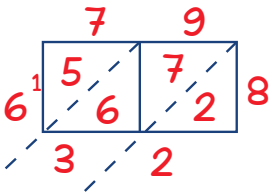
7. 45 x 6 = 270



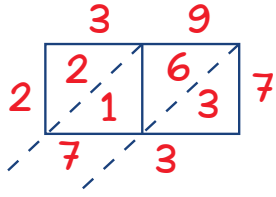
7. 53 x 9 = 477



8. 79 x 8 = 632



9. 39 x 7 = 273

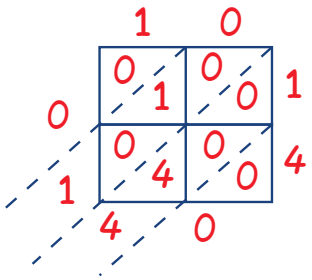


Answer Sheet

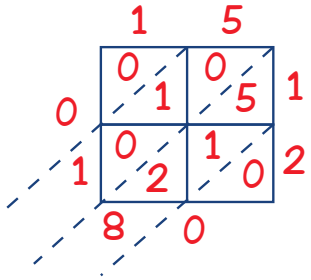
Lattice Multiplication Practice

Let's do double digit lattice multiplication.

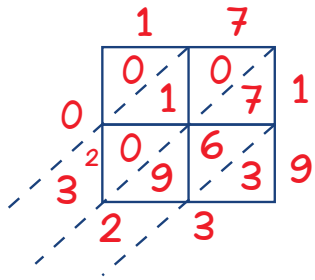
1. 10 x 14 = 140



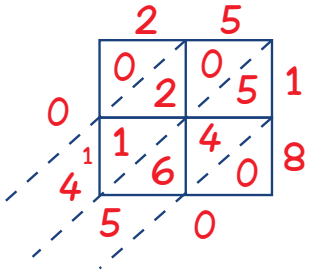
2. 15 x 12= 180



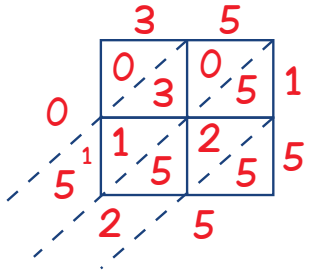
3. 17 x 19 = 323



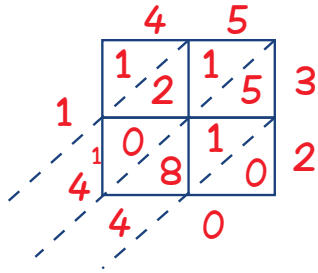
4. 25 x 18 = 450



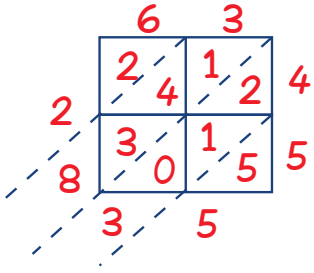
5. 35 x 15 = 525



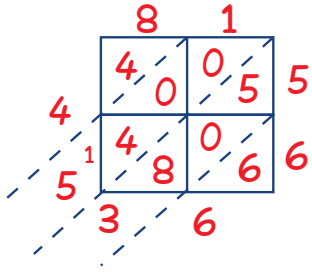
7. 45 x 32 = 1,440



7. 63 x 45 = 2,835



8. 81 x 56 = 4,536



9. 95 x 71 = 6,745