

Name _____

Put Patterns To Work For You!

Complete these multiplication squares. As you work, see if you can spot the patterns.

x	2	4	6	8	10
2					
4					
6					
8					
10					

I observed that the product of two even numbers is
_____.

.....

x	3	5	7	9	11
3					
5					
7					
9					
11					

I noticed that the product of two odd numbers is _____.

x	2	4	6	8	10
3					
5					
7					
9					
11					

I observed that the product of an odd and even number is
 _____.

How could you use this knowledge when doing problems like this:

$$\begin{array}{r} 3,492 \\ \times \underline{588} \end{array}$$

Can you see a pattern with odd and even numbers when doing division? Let's find out.

A. Write down 5 division problems. Make sure the divisors and dividends are both odd numbers. The first one is done for you.

1. $35 \div 7 = 5$

2.

3.

4.

5.

What pattern do you notice?

B. Write 5 division problems again. This time the divisor should be odd and the dividend should be even.

1.

2.

3.

4.

5.

What pattern do you notice?

C. Finally write 5 more division problems. Both the divisors and dividends should be even numbers.

- 1.
- 2.
- 3.
- 4.
- 5.

What pattern do you notice?

How could you use this knowledge about division patterns when doing problems such as:

$$38,193 \div 439 =$$

Let's look at more multiplication patterns...

See if YOU can figure out the pattern. Some of the problems are already done for you.

Multiplication	Add the digits	Sum of the digits
$3 \times 1 = 3$	$3 + 0 =$	3
$3 \times 2 = 6$	$6 + 0 =$	6
$3 \times 3 =$		
$3 \times 4 = 12$	$1 + 2 =$	3
$3 \times 5 =$		
$3 \times 6 =$		
$3 \times 7 =$		
$3 \times 8 =$		
$3 \times 9 =$		
$3 \times 10 =$		
$3 \times 11 =$		
$3 \times 12 =$		

I spot this pattern in the 3's times table:

Complete this pattern table:

Multiplication	Add the digits	Sum of the digits
$6 \times 1 = 6$	$6 + 0 =$	6
$6 \times 2 = 12$	$1 + 2 =$	3
$6 \times 3 =$		
$6 \times 4 = 24$	$2 + 4 =$	3
$6 \times 5 =$		
$6 \times 6 =$		
$6 \times 7 =$		
$6 \times 8 =$		
$6 \times 9 =$		
$6 \times 10 =$		
$6 \times 11 =$		
$6 \times 12 =$		

I spot this pattern in the 6's times table:

Finally complete this pattern table for the 8 facts. You need to keep adding the digits until you get a single digit.

Multiplication	Add the digits	Sum of the digits
$8 \times 1 = 8$	$8 + 0 =$	8
$8 \times 2 = 16$	$1 + 6 =$	7
$8 \times 3 =$		
$8 \times 4 =$		
$8 \times 5 =$		
$8 \times 6 = 48$	$4 + 8 = 12$ $1 + 2 = 3$	
$8 \times 7 =$		
$8 \times 8 =$		
$8 \times 9 =$		
$8 \times 10 =$		
$8 \times 11 =$		
$8 \times 12 =$		

I spot this pattern in the 8's times table:
