Division with Dinosaurs Guide
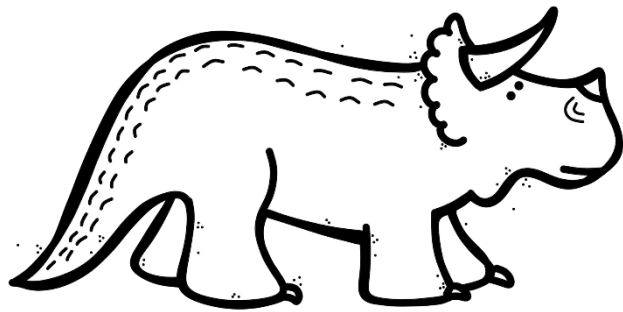
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WHAT IS DIVISION

Division is the separation of a total into a specified number of sets or groups.

- The sets must be even. Any amount that will not separate evenly is left over as a remainder.

- It is the opposite of multiplication which means it will create fact families with Multiplication equations

Fact Families			
$24 \div 4 = 6$	$24 \div 6 = 4$	$6 \times 4 = 24$	$4 \times 6 = 24$

- Has multiple symbols

$$24 \div 6 = 4 \qquad 6\overline{)24}^{\;4} \qquad 6/24 = 4$$

PARTS OF THE DIVISION EQUATION

1) Dividend which is the total amount.
2) The Divisor which is the number that is going into each set.
3) Quotient which is how many sets there will be.
4) Remainder which is a number to show how much of the total cannot be evenly separate. This must be smaller than the divisor.

$$\overset{1}{2}\,7 \overset{2}{\div}\, \overset{3}{6} = \overset{4}{4}\ R3$$

$$\overset{3\ \&\ 4}{6\overline{)27}^{\;4\ R3}}$$

Key Words			
Divide	Sets of	Groups	Equal
Parts	Split	Out of	

BASIC DIVISION

With every division equation you need to figure out how many can go evenly into each set.

$$24 \div 4 = 6$$
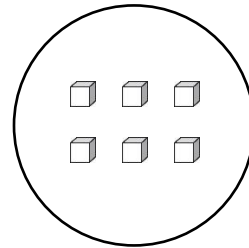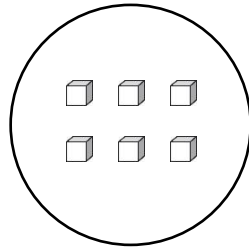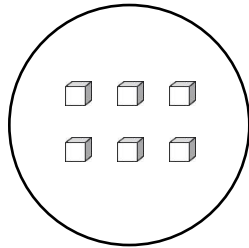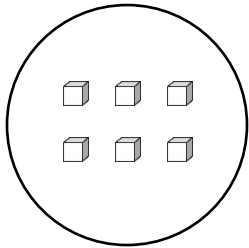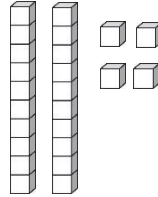
If there is an amount that cannot be evenly shared then the left over amount is recorded as a remainder

$$27 \div 4 = 6R3$$
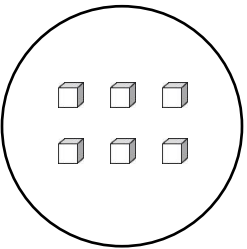
Remainder

TRICKS AND HELPFUL HINTS IN DIVISION

Know your multiplication Chart and how to use it!

X	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

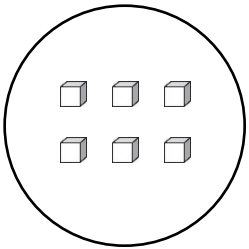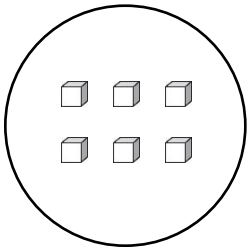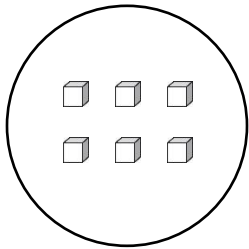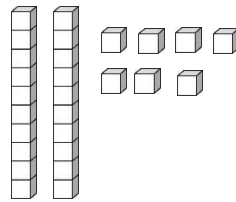## How to use a multiplication chart to solve division questions.

1) Find the line across for your divisor.
2) Trace along the line till you find the closest number to your dividend (total) that is not higher than your total.
3) Then follow that line up to see what your quotient (answer) is.

Built in Failsafe:

Remember that if your remainder is larger than your dividend you have made a mistake.

Don't fall off the cliff:

Always find the closet number without going over.

Picture your total as total distance to the edge of a cliff and the divisor as how long your steps are. You want to find the closest number of steps to get to the edge of the cliff with out going over.

T-Rex is 14M away from the cliff edge. His steps are 4M	If he takes 4 steps he will fall off the edge.	If he takes 3 steps and has 2M to spare.
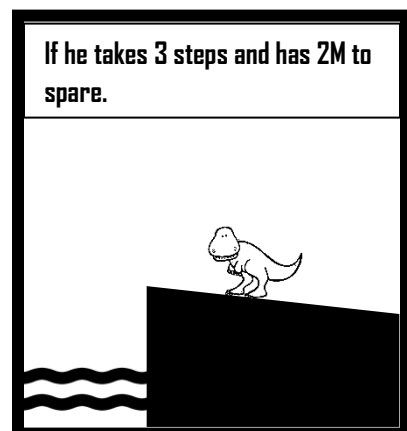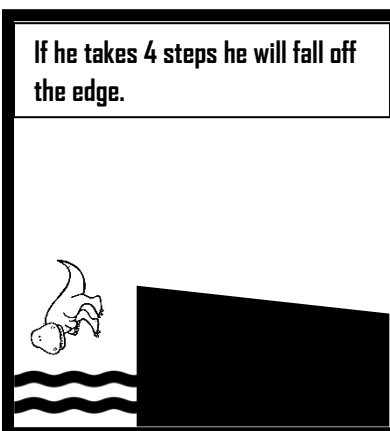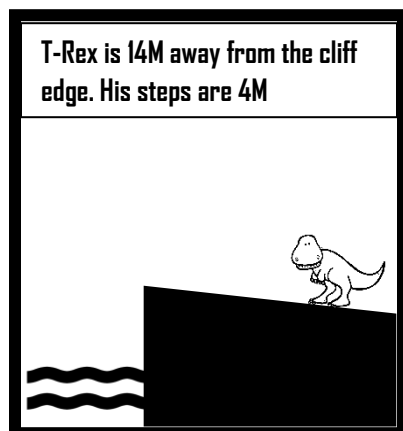
LONG DIVISION

Long Division is a cycle which in math is used to divide large numbers.

Each section of the cycle has 4 parts. Divide, Multiply, Subtract and Regroup.

Divide: This is the first step of the cycle. For this step you see how many of the dividends highest place value amount can be separated into the number of sets shown by the divisor.

Multiply: Then you multiply how many of that place value that you put into each group by the number of sets. This is so that you are able to see how many of that place value that you used.

Subtract: You subtract how many of that place value you put into each set from the amount of the place value in dividend.

Regroup: Any left over of a place value is then changed into the next place value down and added to the amount of that place value in dividend. This step is also referred to as bringing down because of how you complete the equation on paper.

Then you start the cycle again until you complete the process for the ones column.
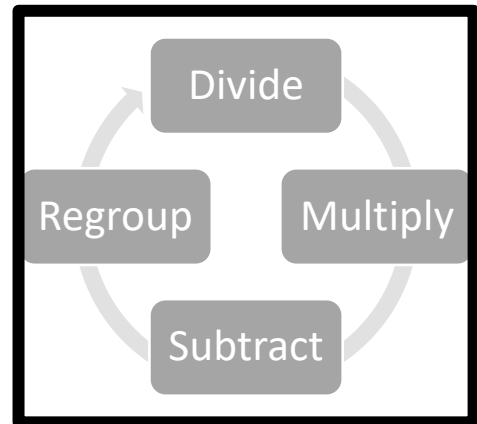
Long division uses the division symbol show below. When starting out it is best to use a grid or some graph paper to make sure you do not mix up your columns.

At first long division looks hard however almost all the information is on your multiplication chart so if you know your chart it is not as difficult as it looks.

STEP BY STEP WALK THROUGH

$$3 \overline{)\ 5 \quad 7 \quad 8}$$

Step 1: Divide

5 divided by 3 is one. We can put 1 hundred in each set and we record that on the top of the line.

		1		
3	5	7	8	
-				
-				
	-			
	R			

Step 2: Multiply

1 multiplied by 3 is 3. You used 3 hundreds.
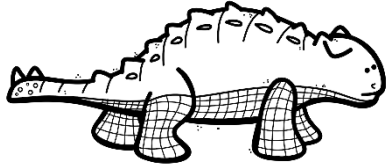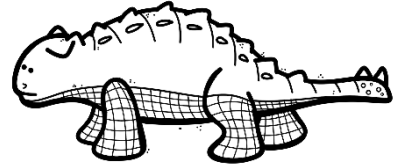
		1		
3	5	7	8	
-	3			
-				
	-			
	R			

Step 3: Subtract

We subtract 3 from 5 and we are left with 2 hundreds.

		1		
3	5	7	8	
-	3			
	2			
-				
	-			
	R			

Step 4: Regroup

We turn the 2 left over hundreds into tens and add them to the 7 tens in the dividend. We then have 27 tens

		1		
3	5	7	8	
-	3			
	2	7		
-				
	-			
	R			

Step 1: Divide

27 divided by 3 is 9. We write the 9 in the tens column on our line.

		1	9	
3	5	7	8	
-	3			
	2	7		
-				
	-			
	R			

Step 2: Multiply

We multiply 9 by 3 to find out how many of the tens were used. The answer is 27.

		1	9	
3	5	7	8	
-	3			
	2	7		
-	2	7		
	-			
	R			

Step 3: Subtract

We take away the 27 tens we used from the 27 tens we had and are left with 0.

	1	9	
3	5	7	8
-	3		
	2	7	
-	2	7	
		0	
	-		
	R		

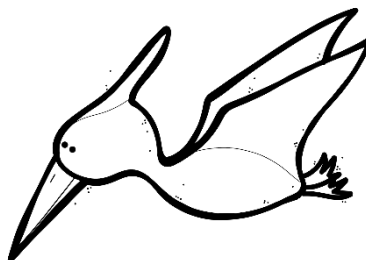**Step 4: Regroup (bring down)**

In this question, there are no tens to regroup into ones so we bring down the 8 ones.

	1	9	
3	5	7	8
-	3		
	2	7	
-	2	7	
		0	8
	-		
	R		

Step 1: Divide

8 divided by 3 is 2. We write the 2 in the ones column.

	1	9	2
3	5	7	8
-	3		
	2	7	
-	2	7	
		0	8
	-		
	R		

Step 2: Multiply

We multiply 2 by 3 to find out how many of the ones were used. The answer is 6.

	1	9	2
3	5	7	8
-	3		
	2	7	
-	2	7	
		0	8
	-		6
	R		

Step 3: Subtract

We take away the 6 ones we put into the sets from the 8 ones we have and we are left with a remainder of 2 ones.

	1	9	2
3	5	7	8
-	3		
	2	7	
-	2	7	
		0	8
	-		6
	R		

The answer is 192 R 2

ONE PAGE WALK THROUGH

$$4\overline{)\,5\quad 3\quad 7}$$

Step 1: Divide

```
      1
  4 | 5   3   7
  -
  -
      -
```

Step 2: Multiply

```
      1
  4 | 5   3   7
  -   4
  -
      -
```

Step 3: Subtract

```
      1
  4 | 5   3   7
  -   4
      1
  -
      -
```

Step 4: Regroup

```
      1
  4 | 5   3   7
  -   4
      1   2
  -
      -
```

Step 1: Divide

```
      1   3
  4 | 5   3   7
  -   4
      1   3
  -
      -
```

Step 2: Multiply

```
      1   3
  4 | 5   3   7
  -   4
      1   3
  -   1   2
      -
```

Step 3: Subtract

```
      1   3
  4 | 5   3   7
  -   4
      1   3
  -   1   2
          1
  -
```

Step 4: Regroup

```
      1   3
  4 | 5   3   7
  -   4
      1   3
  -   1   2
          1   7
  -
```

Step 1: Divide

```
      1   3   4
  4 | 5   3   7
  -   4
      1   3
  -   1   2
          1   7
  -
```

Step 2: Multiply

```
      1   3   4
  4 | 5   3   7
  -   4
      1   3
  -   1   2
          1   7
  -       1   6
```

Step 3: Subtract

```
      1   3   4
  4 | 5   3   7
  -   4
      1   3
  -   1   2
          1   7
  -       1   6
              1
```

The answer is 134 R 1

7