

Word Problems for Units of 2, 3, 4, 5, 10

In solving multiplication, we already know different strategies to help visually and efficiently get the product of factor pairs. Equal groups illustrate the number of groups and the size of each group. Array models illustrate factors in rows and columns. We also know that multiplication has an inverse relation with division, which can help us adapt to different multiplication and division problems. Now, **we can now solve for word problems by applying the different strategies to solve multiplication and division.**

There are some steps in order to help in solving word problems: **First**, read and **understand the situation** at hand. **Second**, **identify the values** involved. Know what the stated factors are. **Third**, choose **which operation is more appropriate** to use. If there is a factor pair and what you are looking for is the product, then, it is more appropriate to use multiplication. If there is an unknown factor and you already have the total, then, it is more appropriate to use division. **Fourth**, **write the number sentence**. Identify the multiplicand and multiplier, or the dividend and divisor. **Fifth**, **draw the appropriate strategy** to help you solve. **Sixth**, **solve for the unknown and label** your final answer.

Consider this word problem:

Betty is baking strawberry cupcakes. She wants to put exactly 5 strawberry toppings in each cupcake. She made 4 cupcakes.

How many strawberry toppings did she use?

First, understand:

Betty baked 4 cupcakes with 5 toppings each.

Second, identify the values:

5 strawberry toppings and 4 cupcakes

Third, choose the operation:

We need to find the total. So, we should multiply.

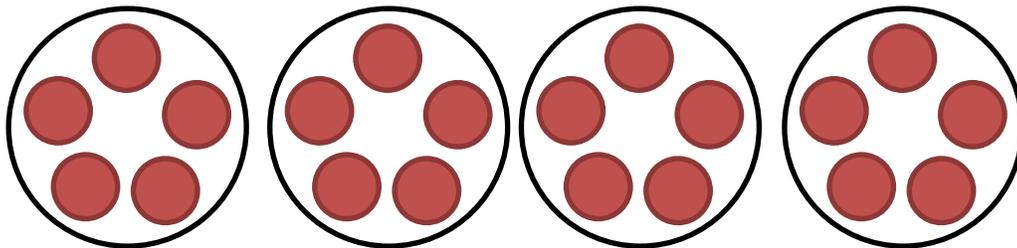
Fourth, write the number sentence:

5 is the multiplicand and 4 is the multiplier: $5 \times 4 = ?$

The product is unknown.

Fifth, illustrate:

We can use the equal groups strategy



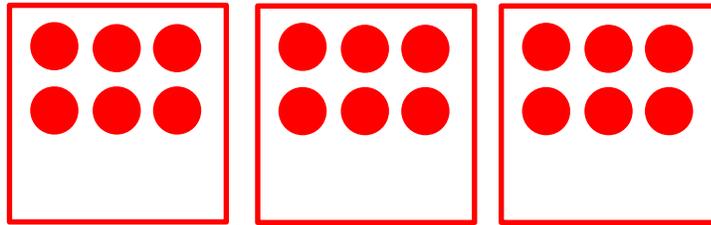
Sixth, solve and label your final answer:

$$5 \times 4 = 20$$

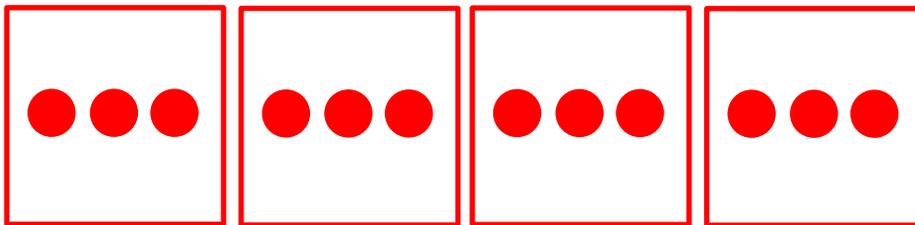
Betty used 20 strawberry toppings altogether.

Draw the equal groups for the following word problems.

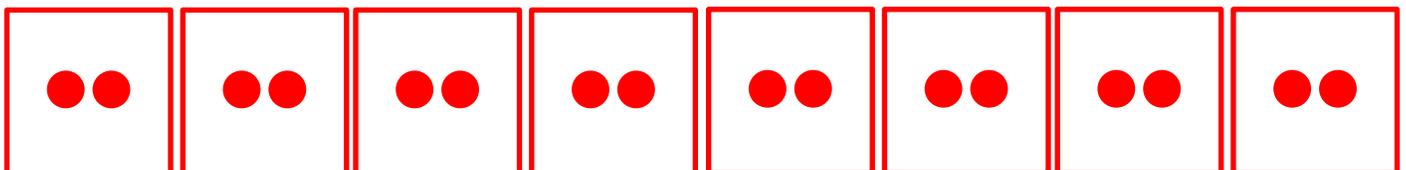
1. Sylvie has 18 crayons. She wants to put them equally in 3 boxes. How many crayons are there in each box?



2. Bella has four sheets of paper and she wants to stick 3 stickers in each paper. How many stickers are there?

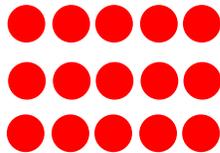


3. Henry wants to put 2 candies each in 8 plastic bags. How many candies will he put all in all?

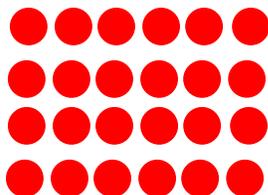


Draw the arrays for the following word problems.

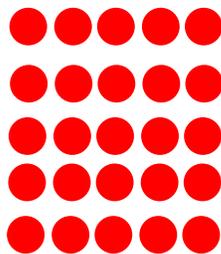
1. Carlos wants to place 5 books each in his 3 shelves. How many books will Carlos store?



2. Diana has 24 lollipops. She places them in an array with 4 rows. How many lollipops are in each row?



3. The students needed to be in an orderly array with 5 rows and 5 columns. How many students are in the array?



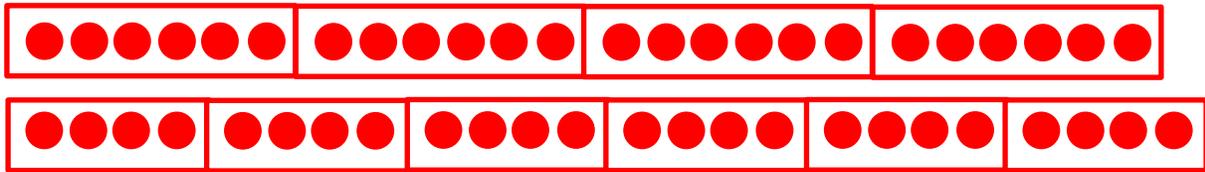
Word Problems

Guided Notes

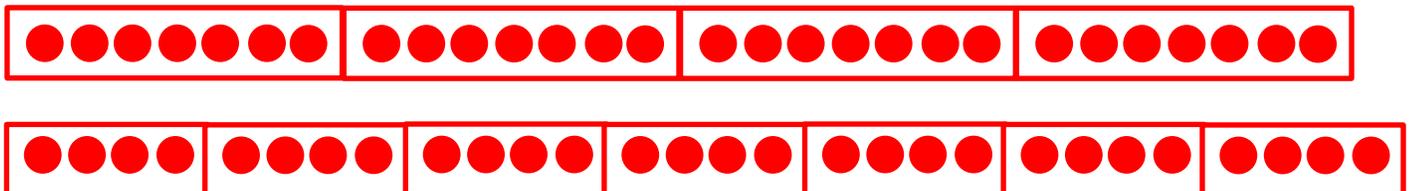
Math 3

Draw the two tape diagrams for the following word problems.

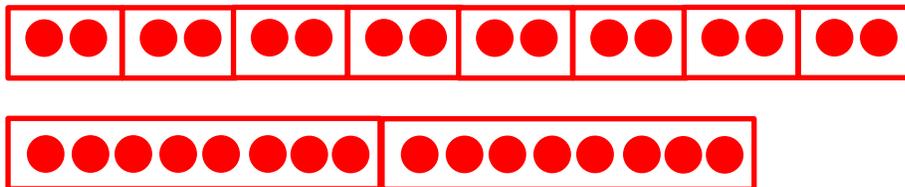
1. Diana has 24 lollipops. She places them in an array with 4 rows. How many lollipops are in each row?



2. Camille has 28 jellybeans. She gives her four friends an equal amount. How many jellybeans did each friend receive?



3. Henry wants to put 2 candies each in 8 plastic bags. How many candies will he put all in all?



Time to Think

How can the following techniques help in solving word problems?

Equal Groups?

This can help if the problem is dealing with groups. Knowing how to represent number of groups and size of groups can help solve word problems that can be represented by groups of objects.

Array Models?

Array models help by showing an order of rows and columns. If the word problem states a particular order of objects, array models can help represent these situations.

Commutative Property?

The commutativity of multiplication can help solve word problems by knowing that the order of factors can be changed. Even with a different order of the factors in the equations, we can still be sure it is the same answer.

Distributive Property?

The distributive property can help solve word problems that have large numbers involved. We can decompose the numbers into smaller numbers and then we can distribute the multiplier or divisor to the two smaller numbers.

Relationship between Multiplication and Division?

Knowing the appropriate operation is needed for solving word problems. However, because of the relationship of multiplication and division, we can actually represent the situations in both operations. We only need to know the equation that is equivalent to both multiplication and division as long as the same unknown is represented.

Answer the following word problems step-by-step:

1. Tiffany has 30 pebbles. She wants to place an equal number each in 3 containers. How many pebbles are in each container?

First, understand:

Tiffany wants to divide 30 pebbles into 3 containers.

Second, identify the values:

30 pebbles and 3 containers

Third, choose the operation:

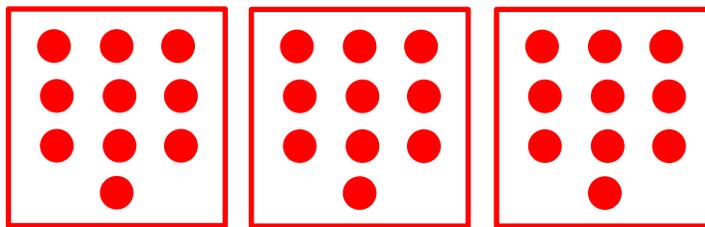
Division

Fourth, write the number sentence:

$$30 \div 3 = ?$$

Fifth, illustrate:

We can use the **equal groups** strategy



Sixth, solve and label your final answer.

$$30 \div 3 = 10$$

Tiffany will have **10 pebbles** in each container.

2. Troy went to the library and noticed that each shelf had 8 books each. There are 4 shelves. How many books are there?

First, understand:

Troy saw 8 books each in 4 shelves.

Second, identify the values:

8 books and 4 shelves

Third, choose the operation:

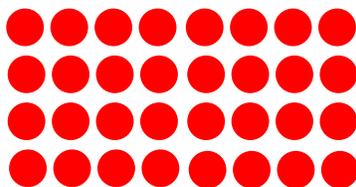
Multiplication

Fourth, write the number sentence:

$$4 \times 8 = ?$$

Fifth, illustrate:

We can use the **array model** strategy



Sixth, solve and label your final answer.

$$4 \times 8 = 32$$

Troy noticed **32 books** in the library.