Math 3 Classwork 21

Warm Up

1 Multiplication and Division Quiz. Do as many problems as you can in **3 minutes.**

5 × 0 =	3 × 15 =	60 × 5 =
10 × 5 =	4 × 3 =	40 × 4 =
6 × 3 =	6 × 2 =	6 × 4 =
8 × 1 =	8 × 10 =	8 × 50 =
2 × 7 =	20 × 9 =	2 × 6 =
9 × 100 =	9 × 5 =	9 × 3 =
7 × 6 =	8 × 7 =	7 × 7 =

10 ÷ 2 =	20 ÷ 4 =	20 ÷ 5 =
16 ÷ 8 =	16 ÷ 2 =	30 ÷ 15 =
30 ÷ 6 =	35 ÷ 5 =	30 ÷10 =

2 To get one glass of freshly squeezed orange juice, we need to take 4 oranges. How many oranges do we need to take to make 10L of orange juice? (1L is 4 full glasses)

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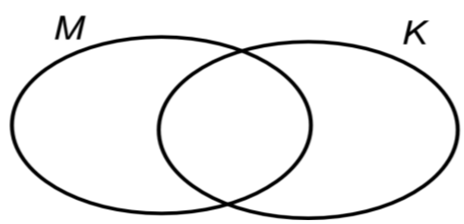
Homework Review

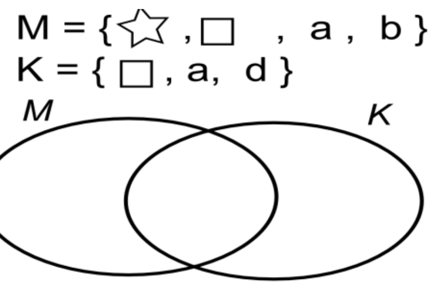
3 Consider sets ***M*** and ***K***. By using { }, define the elements of the set ***M***∩***K***. Mark the elements of the sets ***M*** and ***K*** on the Venn diagram and trace with a colored pencil the set ***M***∩***K***.

a) ____________________________

M = { 15, 25, 30, 40 }
K = { 23, 24, 25 }



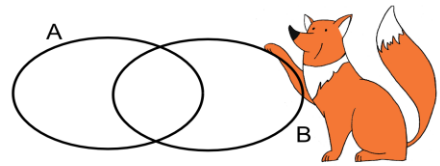
b) ________________________________



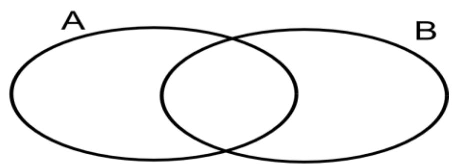
4

Place 4 elements {x, y, z, q} on the diagrams of the sets A and B so that there would be:

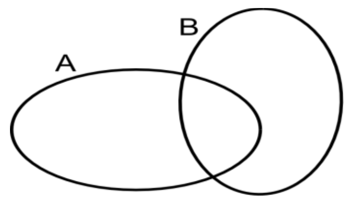
a) 3 elements in each set;



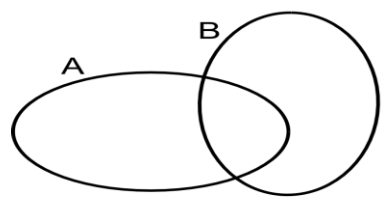
b) 2 elements in one set and 4 elements in the other;



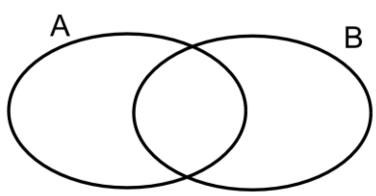
c) 4 elements in one set and 3 elements in the other;



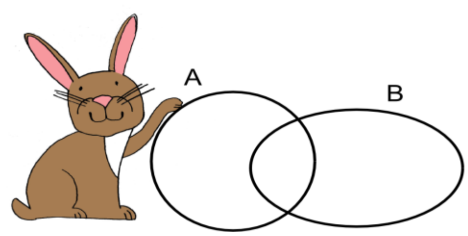
d) 0 elements in one set and 4 elements in the other;



e) 4 elements in each set;



f) 2 elements in each set.



REVIEW I

SOLVING WORD PROBLEMS.

Many problems can be solved in different ways.
You already know how to solve the problems:

- By drawing diagrams
- By representing the unknown quantity with a variable
- By using Venn diagrams

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Solve the problems using the best method (sketch diagrams to visualize the problems):

1. Ron fed the rabbits. The little rabbit got three carrots, and rabbit's mom got five carrots more than the little rabbit. How many carrots did Ron feed to the rabbits?

2. Ved was reading a very interesting book, and he was so captured by the book that he did not notice until 20 pages have remained. How many pages did Ved read if there were only 90 pages in the book?

3. Milan was helping his mom to plant flowers. It takes mom 3 minutes to plant one flower and it takes Milan 4 minutes to plant the same type of flower. If mom worked for 30 minutes and Milan worked for 32 minutes, how many flowers they have planted together? ______________________
   ____

4. What number should be divided by 3 to get 8? ______________________

5. A group of children walked 18 km. This is 3 times more than left to go. What is the length of the route?

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6. Suppose that out of 96 first-graders, 50 children are only playing sports, 22 - only take music lessons, and ten children are doing both - sports and music.
   a. How many children are only playing sports? ____________________
   b. How many children do only take music lessons?_________________
   c. How many children do at least one of those activities?_____________
   d. How many children do only one of those activities?______________
   e. How many children are not involved in music and sports?__________

6

A survey asks 200 people "What beverage do you drink in the morning", and offers choices:

1.Tea only 2. Coffee only 3. Both coffee and tea

Suppose 20 report tea only, 80 report coffee only, 40 report both. Create a Venn diagram to help you to solve a problem.

a) How many people drink tea in the morning? ___________________
b) How many people drink neither tea nor coffee? ________________

REVIEW II

Place Value for Multi-digit whole numbers

Remember, that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

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One-digit-one-line Long Multiplication. **Remember about Place Value!**

a) $23 \times 11 =$ b) $234 \times 111 =$ c) $2345 \times 1111 =$

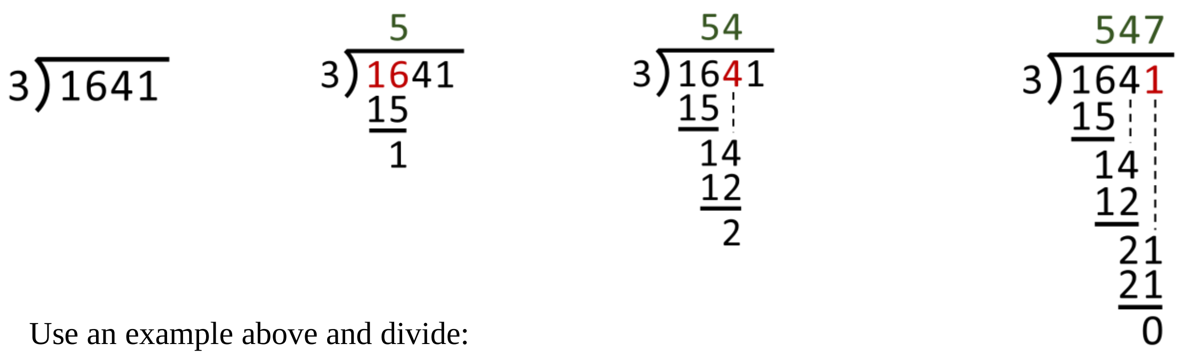
New Material I

Long Division

Long division is simply an algorithm for dividing two numbers, obtaining the quotient one digit at a time.

While doing a long division, you would be given one number (called the divisor) that you have to divide into another number (called the dividend). You set up the long-division symbol, insert the two numbers where they belong, and then start making guesses as to what should go on top of the symbol.

Example:



8 Use an example above and divide:

a) $243 \div 3 =$ b) $576 \div 8 =$ c) $511 \div 7 =$

New Material II

Two sets are called **equal** if they have exactly the same elements. Thus, following the usual convention that 'y' is not a vowel, the set C ={vowels in the English alphabet} = {a, e, i, o, u}

On the other hand, the sets A = {1, 3, 5} and B ={1, 2, 3} are not equal, because they have different elements. This is written as {1, 3, 5} ≠ {1, 2, 3} or A ≠ B

The order in which the elements are written between the curly brackets does not matter at all. For example,

{1, 3, 5, 7, 9} = {3, 9, 7, 5, 1} = {5, 9, 1, 3, 7}.

If an element is listed more than once, it is only counted once. For example, { a, a, b } = { a, b }.

The set {a, a, b} has only the two elements a and b. The second mention of a is an unnecessary repetition and can be ignored. It is normally considered poor notation to list an element more than once.

9

a) Set C is a set of all multiples of number 15. The set D is a set of all multiples of a number 18. Are sets C and D equal? Explain. __________

b) Set E is a set of all multiples of number 36. The set F is a set of all multiples of a number 12. Are sets E and F equal? Explain. __________

The phrases 'is an element of' and 'is not an element of' occur so often in discussing sets that the special symbols ∈ and ∉ are used for them. For example, if A = { 3, 4, 5, 6 }, then

3 ∈ A (Read this as '3 is an element of the set A'.)

8 ∉ A (Read this as '8 is not an element of the set A'.)

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a) The set A is the set of all even numbers.

Does 100 belong to the set A?

Does 1001 belong to the set A?

b) The set B is the set of all numbers divisible by 4.

Does 88 belong to the set B?

Does 100 belong to the set B?

Did you know …

The benefits of analyzing math problems before starting to solve them.

There was a boy in a class studying math with, of course, a math teacher. This boy's name is Carl Friedrich Gauss (1777 - 1855). One day this math teacher presented a challenging mathematical problem to the class where Gauss is in.

The math problem is to add up all the numbers starting from 1 and ending with 100.
Every students picked up a piece of paper and started to add up the numbers one after another from number 1 onwards.

Within a short span of time, while his fellow students were still struggling, Gauss went forward to the teacher and submitted his answer.
That action surprised not only his math teacher but the whole class. But that is not all....
The interesting thing is that his answer is correct.

How did he do that so fast?

He came out a different way of analyzing the mathematical problem. Instead of the normal way of adding the first numbers onwards, Gauss looked at the problem with a different angle.

What he did was to split the range of number from 1 to 100 into two equal halves, 1 to 50 and 51 to 100. He noticed that if he flipped the last half to start from 100, and adding it the two ranges together, he will get something stunning.

He discovered that by adding the first pair, 1 + 100, he got an answer of 101. For the second pair, 2 + 99, he again got the same answer 101.

This answer of 101 was still valid for the rest of the number pair addition. And since there were 50 pairs of numbers, the final total is 101 x 50 which gave Gauss an answer of 5050.