# THE PEARL EDUCATIONAL CONSULP KAMPALA SCHOOLS



# P.2 Mathematics

**LESSON NOTES** 

Term I

THEME: OUR SCHOOL AND NEIGHBOURHOOD.

SUB THEME: <u>SETS.</u>

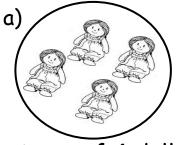
# Week One

#### Lesson 1

#### <u>Sets</u>

A set is a collection of well-defined things or objects.

# Naming sets.



A set of 4 dolls.

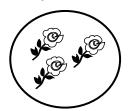


A set of 8 sticks.

# **Activity**

1. Name these sets.

a)



c)



b)



d)

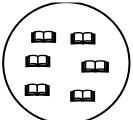


# Drawing sets.

a) A set of 2 tables.



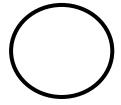
b) A set of 6 books.



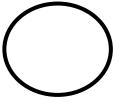
# **Activity**

Draw the following sets.

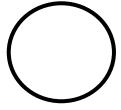
a) A set of 7 rulers.



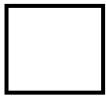
b) A group of 3 tins.



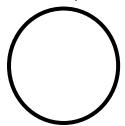
c) A set of 2 desks.

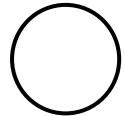


d) An empty set.

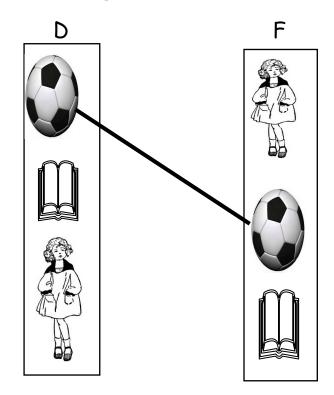


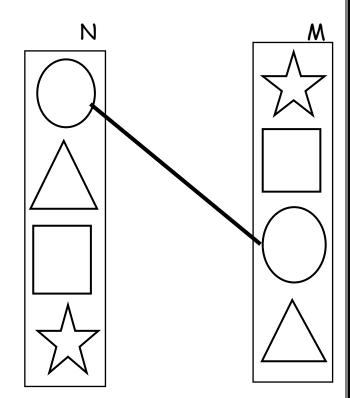
d) A set of 5 umbrellas. e) A set of vowel letters.





# **Matching sets**





# **Activity**

# 1. Match correctly.

A

$$5 + 4$$

В

7

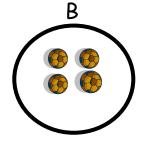
5

9

4

# Comparing sets.





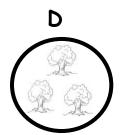
a) Which set has more members?

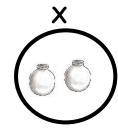
Set B

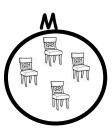
- b) Set B has 4 members.
- c) Set A has 2 members.

# **Activity**

Compare these sets using more or less.







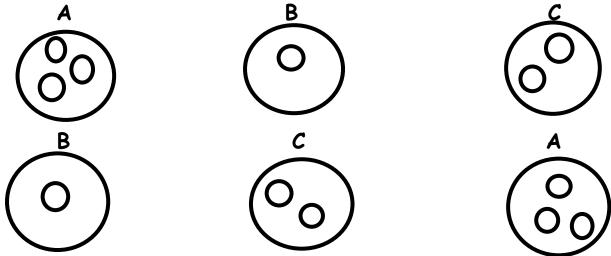
Questions

- 1. Set D has \_\_\_\_\_ members.
- 2. Set X has \_\_\_\_\_ members.
- 3. Set M has \_\_\_\_\_ members.
- 4. Set X has \_\_\_\_\_members than set M.
- 5. Set D has \_\_\_\_\_ members than set X.

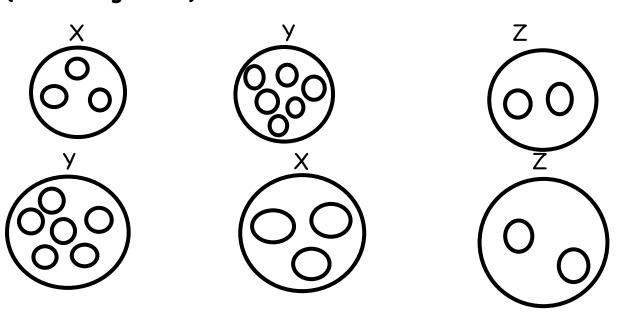
# Ordering sets

Ordering sets in ascending and descending order.

1. Arrange these sets from the smallest to the biggest (ascending order)

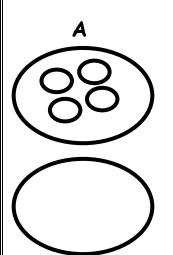


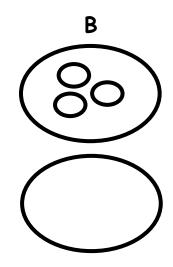
2. Arrange these sets from the biggest to the smallest. (descending order)

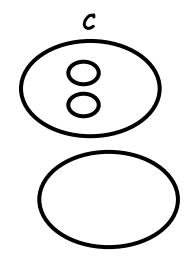


# **Activity**

1. Arrange these sets in ascending order.

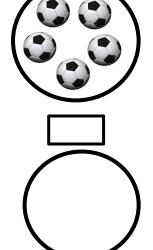




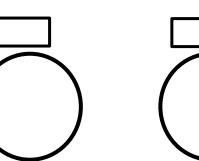


2. Arrange the following sets from biggest to the smallest.









Week Two

# Lesson 1

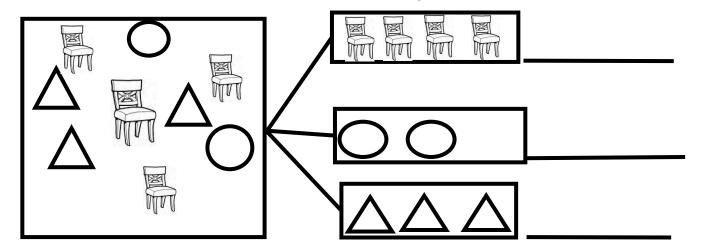
Sub sets / sorting sets.

A sub set is a small set got from a big set.

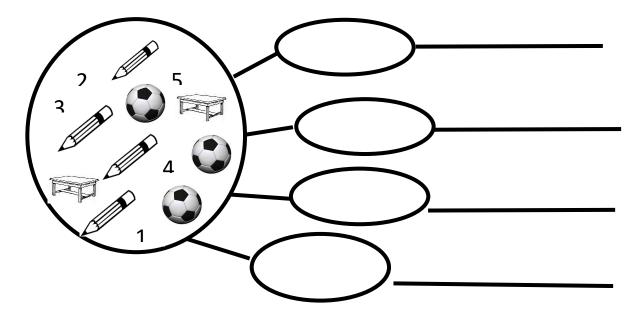
The symbol for sub set is



Make and name small sets from the big set.



2. Sort these sets and make new sets.



# Lesson 2

# Empty sets / Null set.

An empty set is a set with no members.

The symbol for empty set is { } or

Examples of empty sets.



Using empty or not empty.

a) A set of men who breastfeed babies.

Empty set

<b>b</b> )	) A	set	of	birds	with	two	eyes.
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# Not empty set

c) A set of animals eaten as food. Not empty set

#### Activity

1. What is an empty set?

2. Use empty set or not empty set.

a) A set of flies which are as big as an elephant.\_\_\_\_\_

b) A set of people who are women.\_\_\_\_

c) A set of homes with 10 people.

d) A set of cows with 3 eyes each.

e) A set of 7 books.

f) A set of cows flying like birds.

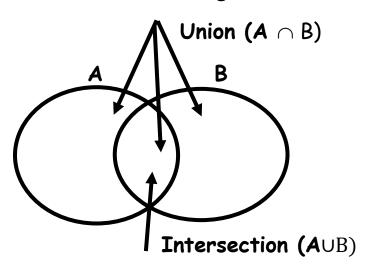
g) A set of girls with 3 legs each.

h) A set of walking trees.

i) A set of breast feeding men.

3. Name the symbol given.

# Parts of a Venn diagram.



# Intersection Sets

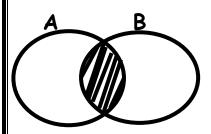
Intersection set is a set made up of common members in two or more sets.

The set symbol for intersection set is written as "  $\cap$  "

Shading intersection set/ region.

# **Example**

Shade  $A \cap B$ 

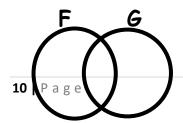


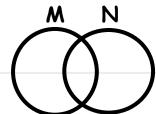
#### **Activity**

Shade the intersection of these sets.

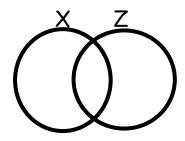
1. Shade  $F \cap G$ 

2. Shade  $M \cap N$ 

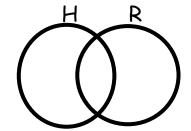




3. Shade  $X \cap Z$ 



4. Shade  $H \cap R$ 



# Lesson 4

Finding the common members of sets.

# Example

1. Set  $A = \{ (1)(2)(3), 4 \}$  and Set  $B = \{ 0, (1)(2)(5) \}$ 

Find  $A \cap B$ 

$$A \cap B = \{1, 2\}$$

2. Set R =  $\{\bigcirc, \square, \bigwedge\}$  and Set S =  $\{\bigcirc, \bigvee, \bigwedge\}$ 

Find  $R \cap S$ 

$$R \cap S = \{ \Lambda \}$$

#### Activity

Find the common members in the sets below.

Set 
$$Z = \{f, e, c, g, a, d\}$$

Find 
$$Y \cap Z = \{$$

2. Set 
$$H = \{1, 2, 3, 4, 5, 6, 7\}$$

Set 
$$J = \{0, 3, 6, 1, 9, 10\}$$

Find 
$$H \cap J = \{$$

# Lesson 5

# The union set

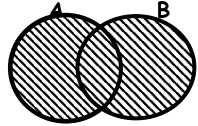
Union set is a set made up of all members in two or more sets without repeating them.

The set symbol for union set is written as U

Shading union set/ region.

# <u>Example</u>

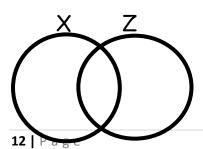
Shade  $A \cup B$ 



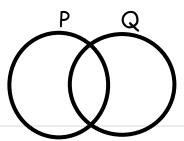
#### **Activity**

Shade the union part of the following sets.

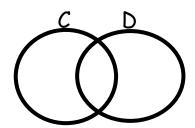
1. Shade  $X \cup Z$ 



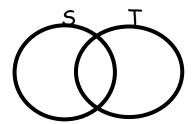
2. Shade  $P \cup Q$ 



3. Shade  $C \cup D$ 



4. Shade  $S \cup T$ 



# Week three

# Lesson 1

Finding members in the union set.

# **Example**

1. Set 
$$A = \{a, b, c, d, f, e\}$$

Set 
$$B = \{d, e, f, a\}$$

Find  $A \cup B$ 

$$A \cup B = \{a, f, e, b, c, d\}$$

Set 
$$Q = \{3, 5, 7, 9\}$$

Find  $P \cup Q$ 

$$P \cup Q = \{1, 2, 3, 4, 5, 7, 9\}$$

# Activity

Find the union in the sets below.

Set 
$$E = \{ f, e, c, g, a, d \}$$

Find D 
$$\cup$$
 E = { \_\_\_\_\_\_

2. Set L = { 1, 2, 3, 4, 5, 6, 7 }
Set K = { 0, 3, 6, 1, 9,10 }

Find L ∪K= { \_\_\_\_\_\_\_

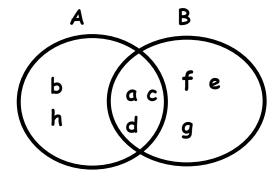
4. Set  $S = \{1, 2, 3, 4, 5, 6, 7, 9, 10\}$ Set  $T = \{2, 11, 4, 8, 0, 7\}$ Find  $S \cup T = \{$ 

# Lesson 2

# Representing the information on a venn diagram.

# Example

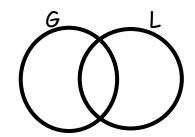
1. Set A = { a, b, e, a, h}
Set B = { f, e, e, g, a, d}

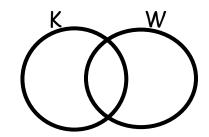


#### **Activity**

Represent the information in the Venn diagram.

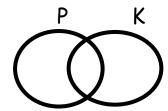
1. Set  $G = \{1, 2, 3, 4, 5, 6, 7\}$  2. Set  $K = \{1, 2, 3, 4, 5, 6, 7, 9, 10\}$ Set  $L = \{2, 11, 4, 8, 0, 7\}$  Set  $W = \{0, 3, 6, 1, 9, 10\}$ 

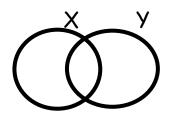




3. Set 
$$P = \{ \Box, \bigcirc, \bigcirc \}$$
 4. Set  $X = \{0, 1, 2, 3, 4\}$   
Set  $K = \{ X, \bigcirc, \bigcirc, \bigcirc \}$  Set  $Y = \{1, 4, 7, 8, 0\}$ 

4. Set 
$$X = \{0, 1, 2, 3, 4\}$$
  
Set  $Y = \{1, 4, 7, 8, 0\}$ 





Finding number of members in a given set.

n(A) stands for number of members in set A

# Example

1. Set 
$$P = \{1, 4, 7\}$$

Find n (P)

Set 
$$P = \{1, 4, 7\}$$

n(P) = 3 members

2. Set  $M = \{a, e, i, o, u\}$ 

Find n(M)

Set  $M = \{a, e, i, o, u\}$ 

n(M) = 5 members

#### **Activity**

Find the number of members in the following sets.

1. Set 
$$A = \{0, 1, 2, 3, 4, 5, 6\}$$
  
Find  $n(A)$ 

2. Set  $X = \{ a, b, c, d, e \}$ 

Find n(X)







Find n(R)

4. Set C = {2, 11, 4, 8, 0, 7}

Find n(C)

#### Lesson 4

Finding the number of members in the intersection set using symbol (n)

Number of members in set P intersection Q is written as n( PnQ).

# Example

1. Set  $P = \{a, b, c\}$  and Set  $Q = \{c, f, c\}$ 

Find n  $(P \cap Q)$ 

$$P \cap Q = \{a, c\}$$

 $n(P \cap Q) = 2$  members

2. Set  $A = \{1, 2, 3, 5\}$  and  $B = \{2, 3, 5, 7, 9\}$ 

Find  $n(A \cap B)$ 

$$A \cap B = \{2, 3, 5\}$$

 $n(A \cap B) = 3$  members

#### **Activity**

Find the number of intersection set.

- 1. Set  $X = \{0, 1, 2, 3, 4\}$  and Set  $Y = \{1, 4, 7, 8, 0\}$ Find  $n(X \cap Y)$
- 2. Set  $P = \{a, b, c, d\}$  and Set  $Q = \{d, e, f, g, i\}$ Find  $n(P \cap Q)$
- 3. Set  $A = \{a, b, c, d, f, e\}$  and Set  $B = \{d, e, f, a\}$ Find  $n(A \cap B)$

#### Lesson 5

Finding number of members in the union set.

Number of members in set S intersection J is written as n(SnJ).

# Example

1. Set 
$$S = \{1, 2, 3, 4\}$$
 and Set  $J = \{6, 7, 8\}$   
Find n (S $\cup$ J =  $\{1, 2, 3, 4, 6, 7, 8\}$   
n(S $\cup$ J) = 7 members

#### Activity

Find the number of members in the union of these set.

- 1. Set  $A = \{a, b, c, d, e\}$  and Set  $B = \{a, e, i, o, u\}$ Find  $n(A \cup B)$
- 2. Set  $K = \{0, 1, 2, 3, 4, 5\}$  and Set  $L = \{2, 4, 6, 8, 10\}$ Find  $K \cup L$

3. Set  $F = \{4, 5, 3, 1, 8\}$  and Set  $B = \{2, 3, 5, 6, 7, 9\}$ Find  $n(F \cup G)$ 

- 4. What is a set?
  - 5. Name these set symbols below.









# Week four

# Lesson 1

Numeration system and place values.

#### Place Values

A place value is a position of a digit in a given number.

#### Drawing Tens and Ones.

Ones - The Ones start from 0 to 9

Examples.

The ones have only one digit. e.g. 0,1, 2, 3, 5, 6, 7, 8, 9.

We do not tie a bundle when the sticks are less than 10.

Tens - The Tens have 2 digits e.g 10, 30, 20, etc

1 Ten = 10 sticks

# **Examples**

∰ # = 20

= 30

1 Ten

2 Tens

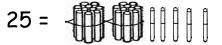
3 Tens

We tie a bundle when the sticks are 10 (ten)

Counting and drawing Tens and Ones.

#### Example:

1 Ten 2 Ones



2 Tens 5 Ones

3 Tens 0 Ones

# **Activity**

1. Draw and count the Ones

**b**. 7 Ones =

c. 4 Ones =

**d**. 8 Ones =

2. Draw for the Tens.

a. 2 Tens

b.5 Tens

c. 1 Ten

d. 6 Tens

**e**. 30

- e. 1 One =
- f. 6 Ones =
- g. 9 Ones =
- h. 2 Ones =

Drawing and counting Tens and Ones.

# Examples

# Draw Tens and Ones

# **Activity**

Draw bundles for tens and sticks for ones.

# Lesson 3

Filling in Tens and Ones.

# **Examples**

a. 52 = 5 Tens 2 Ones b. 30 = 3 Tens 0 Ones

c. 17 = 1 Ten 7 Ones

# **Activity**

1. Fill in Tens and Ones.

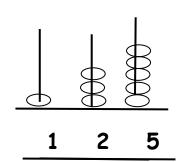
a. 63 = \_\_\_\_\_ Tens \_\_\_\_ Ones
 b. \_\_\_\_ = 2 Tens 7 Ones
 c. 18 = \_\_\_\_ Tens \_\_\_\_ Ones
 d. 5 = \_\_\_\_ Tens \_\_\_\_ Ones
 e. \_\_\_\_ = 1 Tens 0 Ones
 f. 80 = \_\_\_\_ Tens \_\_\_\_ Ones

# The abacus

Representing numbers on the abacus

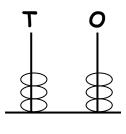
0

# Example

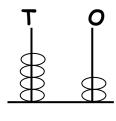


# **Activity**

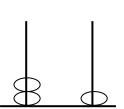
- 1. Complete the abacus below.
- a)



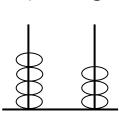
**b**)



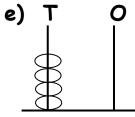
c)



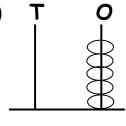
d)



**21** | Page



d)



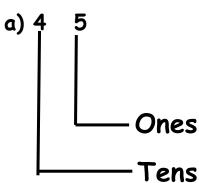
# 2. Show the following numbers on the abacus.

# Lesson 5

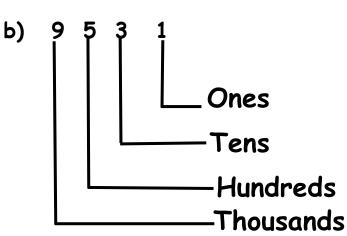
# Finding the place values of the given number.

# Examples

T 0



Th H T O



# **Activity**

- 1. Find the place value of the underlined number.
  - a) 2 3 4 5

b) 3 <u>4</u> 6

c) 70<u>2</u>

- d) 1985
- 2. What is the place value of 4 in the figure?
  - a) 6 4 7

b) 4891

c) 784

d) 4 6 3

# Week five

# Lesson 1

# Finding the value of numbers.

A value is a product of a digit and its place value.

# **Example**

# **Activity**

1. Find the value of the circled number.

HTO

a) 3 **4** 1

Th H T O

b)①367

HTO

c) 9 3 8

HTO

- d) (5) 2 0
- 2. Write the value of the underlined digit.
  - a) 1 <u>2</u> 3 4
- b) 3 6 <u>7</u>

c) <u>8</u> 0 9 1

# Expanding numbers using place values.

# Examples

TO

HTO

a) 
$$48 = 4 8$$

$$= (4 \times 10) + (8 \times 1)$$

$$= (4 \times 10) + (8 \times 1) \qquad \qquad = (3 \times 100) + (9 \times 10) + (7 \times 1)$$

# **Activity**

Expand these numbers using place values.

i) 7 2 1

iii) 4412

v) 303

ii) 57

iv) 126

# Lesson 3

Expanding numbers using values.

$$= (1 \times 1000) + (2 \times 100) + (9 \times 10) + (7 \times 1)$$

$$= 1000 + 200 + 90 + 7$$

# **Activity**

Expand these numbers using values.

i) 444

iii) 99

ii) 3127

iv) 495

# Finding the expanded number.

# Example:

$$600 + 70 + 3 = 673$$

# Solution

$$6 + 0 = 6$$

# Activity

# What number has been expanded?

$$e) 70 + 7 =$$

# Lesson 5

# Writing numbers in words.

1- one

6 - six

11 - eleven

2 - two

7 - seven

12 - twelve

3 - three

8 - eight

13 - thirteen

4 - four

9 - nine

14 - fourteen

5 - five

10 - ten

15 - fifteen

16 - sixteen

30 - thirty

80 - eighty

17 - seventeen

40 - forty

90 - ninety

18 - eighteen

50 - fifty

100 - one hundred

19 - nineteen

60 – sixty

20 - twenty

70 - seventy

# **Activity**

1. Write the following number names.

a) 24

b) 33

c) 57

d) 108

e)200

f) 125

2. Write these numbers in figures.

i) twelve

ii) ninety

iii) one hundred six.

Week Six

# Lesson 1

Operation of numbers.

Addition of numbers.

Addition of 2 digit numbers by 1 digit number vertically without regrouping.

Note: Always add starting with ones.

# Example

# Solution T O

S.W

# **Tens**

# Activity

# Add correctly.

$$1.33+3=2.90+6=3.77+2=4.10+5=$$

# Lesson 2

Addition of 2 digit numbers by 2 digit numbers vertically without regrouping.

# Example

# Solution

# Ones

#### Tens

# **Activity**

Addition of 2 digit numbers by 2 digits with regrouping.

In addition, we regroup by carrying.

# Examples

# <u>Solution</u>

1T O

6 4

+1 7

8 1

# <u>Ones</u>

88 800

4 + 7 = 11

#### Tens

0 88 0

1 + 6 + 1 = 8

# **Activity**

Add these numbers correctly with regrouping.

# Lesson 4

Word problem in addition without regrouping.

Terms used to mean addition.

Sum profit total

gain more

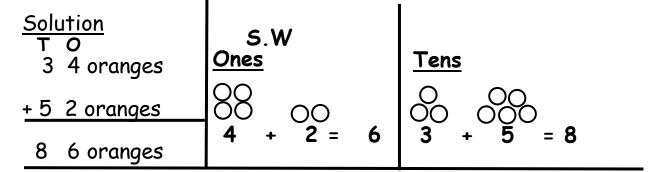
increase plus

altogether

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# Example

Adam bought 34 oranges. Eve bought 52 oranges. How many oranges did they buy altogether?



They bought 86 oranges altogether.

# **Activity**

- 1. Find the total number of 24 chairs and 12 chairs.
- 2. What is the sum of 36 balls and 10 balls?
- 3. Nakato collected 32 bottle tops and Babirye collected 37. How many bottle tops did they collect altogether?
- 4. Tom had 55 cows. His brother had 21 cows. How many cows did the two brothers have?

#### Lesson 5

Word problem in addition with regrouping.

# Examples

1. Jane has 26 cows and 46 goats. How many animals does she have altogether?

Solution		<u>  S.W</u>	1
1T	0 6 animals	<u>Ones</u>	Tens
+4	6 animals	6 + 6 = 12	1+2+4=7
7	2 animals		

# Therefore; Jane has 72 animals altogether.

# **Activity**

- Grace has 73 sweets. Betty has 39 sweets. Find the sum of 1. their sweets.
- Musa had 35 books. Dan added 37 more books. How many books 2. does he have altogether?
- Peter has 67 eggs, his friend has 14 eggs. How many eggs do 3. they have altogether?
- A girl was given 35 apples on Monday and 18 apples on Tuesday. 4. How many apples was she given altogether?

# Week seven

# Lesson 1

Subtraction of numbers.

Subtraction of numbers vertically without regrouping.

# Example

a) 
$$93 - 12 = 81$$

Solution TO 93	Ones 800	Tens
-12	3 - 2 = 1	9-1=8
8 1		

#### Activity

Subtract these numbers.

a) 
$$45 - 23 =$$

c) 
$$64 - 33 =$$

# Subtraction of numbers vertically with regrouping.

In subtraction, we regroup by borrowing.

# Example

Take away 53 from 91

# Solution

T O	<u>s.W</u>
<b>§</b> 1	<u>Ones</u>
<u>-5 3</u>	
3 8	11 - 3 = 8

# <u>Tens</u> \$\phi\phi\phi\000 **8 - 5 = 3**

#### **Activity**

Try these numbers.

# Lesson 3

Word problem involving subtraction of numbers without regrouping.

Terms used to mean subtraction.

Take away

Remains

Minus

Remove

Decrease

Less

Loss

Difference

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# Example

There were 24 mangoes in a box, 13 of them got rotten. How many mangoes are still good?

# Solution

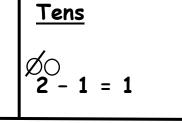
There are 11 mangoes still good.

# Lesson 4

Word problem involving subtraction of numbers with regrouping. (borrowing)

# Example

Anna had 34 cows. If she sold off 16 cows, how many she remain with?



# **Activity**

- 1. What is the difference between 54 and 27?
- 2. Take away 43 from 60.
- 3. Subtract 78 from 92.

Multiplication of numbers.

Multiplication of numbers horizontally by 2,3,4 and 5 digit numbers.

# Example

# **Activity**

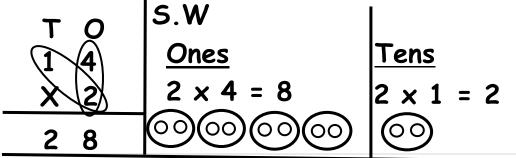
Work out the following numbers.

# Week eight

# Lesson 1

Multiplication of 2 digit numbers vertically by 1 digit number.

#### Example



# **Activity**

Multiply these numbers correctly.

- 1.10 2.32

3.12

4.21

- x 2
- × 3

× 4

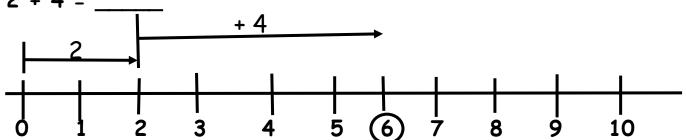
x 5

# Lesson 2

# Number line

Addition of numbers using a number line.

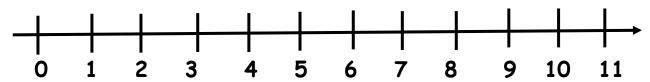
# Example



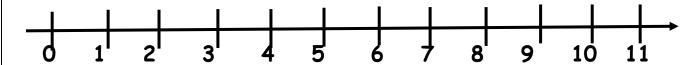
# **Activity**

Add these numbers correctly using a number line.

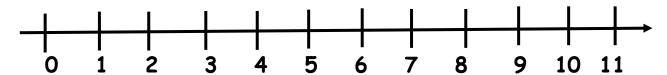




3. 5 + 1 = \_\_\_\_\_



4. 2 + 2 = \_\_\_\_\_



5. 6 + 3 = \_\_\_\_\_

