

FRACTIONS

Reasons of teaching fractions.

- To solve daily challenges.
- To promote logical reasoning.
- To promote creativity.
- To promote decision making.
- To develop counting skills.

Practical examples where fractions are applied.

- Cooking
- Baking
- Construction
- Mixing drinkings

Vocabulary:

Numerator, denominator, a whole, shaded, unshaded, less than, greater than, equal to, smaller than, bigger than, more than, less than.

Suggested items that can be used to introduce fraction are;

Sticks, apples, tomatoes, strings, bars of soap.

Definition

A fraction is a part of a whole.

Naming parts of a fraction

Examples

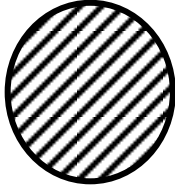

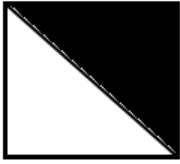


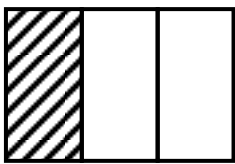
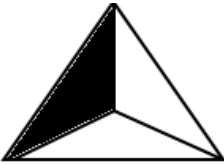
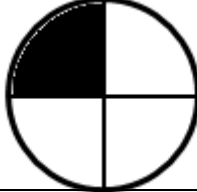
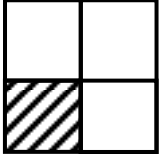
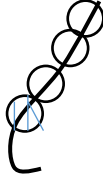
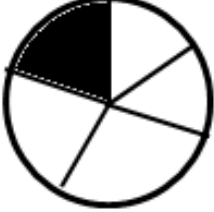

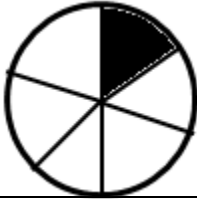
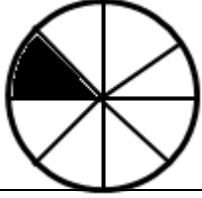
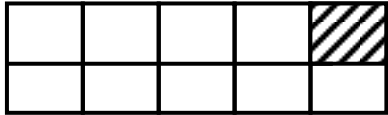


Given the fraction $1\frac{2}{5}$

2 is a numerator

5 is a denominator





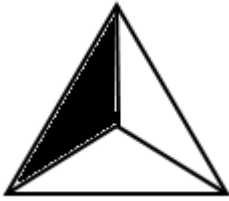
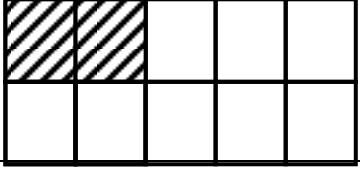
1 is a whole

Naming fractions

WE SEE	WE WRITE	WE READ
	1	One whole or a whole
 ,  , 	$\frac{1}{2}$	One half or a half
 ,  , 	$\frac{1}{3}$	One third or a third
 ,  , 	$\frac{1}{4}$	One quarter or a quarter
 , 	$\frac{1}{5}$	One fifth or a fifth
	$\frac{1}{6}$	One sixth or a sixth
	$\frac{1}{8}$	One eighth or a eighth
	$\frac{1}{10}$	One tenth or a tenth
 	$\frac{2}{3}$	Two thirds

Activity

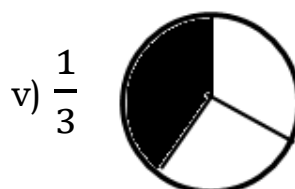
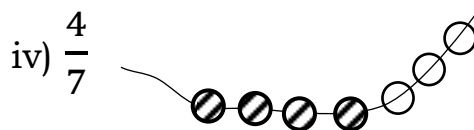
Name these fractions

WE SEE	WE WRITE	WE READ
	$\frac{3}{4}$	_____
	_____	_____
	$\frac{4}{6}$	_____
	_____	Three sevenths
	_____	_____
	_____	<u>Two tenths</u>

Shading parts of a fractions.

Examples

a) Shade the following fractions in the diagrams below.



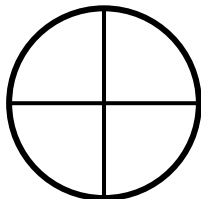
iii) $\frac{2}{4}$



Activity

1. Shade the following parts.

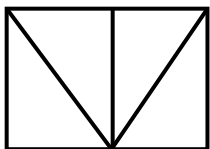
a) $\frac{3}{4}$



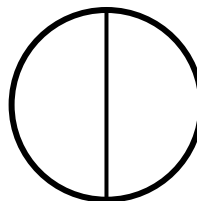
d) 1 whole



b) $\frac{1}{4}$



c) 1 of 2 parts



Naming shaded and unshaded fractions

Examples

1.



Shaded fraction = $\frac{1}{4}$
Unshaded fraction = $\frac{3}{4}$

2.



Shaded fraction = $\frac{3}{5}$
Unshaded fraction = $\frac{2}{5}$

3.

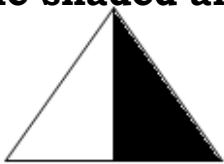


Shaded fraction = $\frac{3}{4}$
Unshaded fraction = $\frac{1}{4}$

Activity

Write the shaded and unshaded fractions.

a)



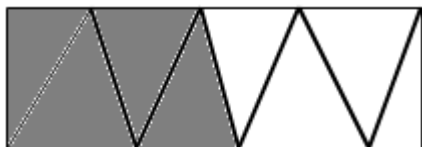
Shaded fraction =
Unshaded fraction =

b)



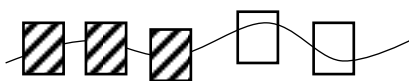
Shaded fraction =
Unshaded fraction =

c)



Shaded fraction =
Unshaded fraction =

d)



Shaded fraction =
Unshaded fraction =

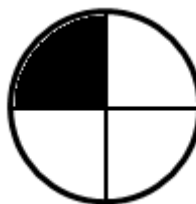
Comparing fractions with the same denominators using greater than/bigger than, less than/smaller than, equal to

Examples

1. $\frac{2}{3}$ is greater than $\frac{1}{3}$



2. $\frac{1}{4}$ is less than $\frac{3}{4}$



Activity

1. Compare the following using “bigger than” or “smaller than” to complete correctly.

a) $\frac{2}{4}$ is _____ $\frac{1}{4}$

b) $\frac{1}{5}$ is _____ $\frac{3}{5}$

2. Use “more than” or “less than” to complete correctly.

a) $\frac{4}{8}$ is _____ $\frac{6}{8}$

b) $\frac{5}{7}$ is _____ $\frac{3}{7}$

3. Use “greater than” or less than” to complete correctly

a) $\frac{4}{10}$ is _____ $\frac{6}{10}$

b) $\frac{5}{6}$ is _____ $\frac{1}{6}$

Comparing fractions with different denominators using “greater than/bigger than/more than”, less than/smaller than” or equal to

Examples

1. Which is bigger?

$\frac{1}{3}$ or $\frac{1}{4}$

$\frac{1}{3}$



$\frac{1}{4}$



$\frac{1}{3}$ is bigger than $\frac{1}{4}$

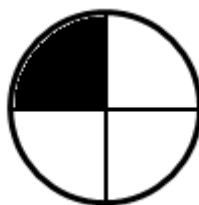
2. Which is smaller?

$\frac{1}{2}$ or $\frac{1}{4}$

$\frac{1}{2}$



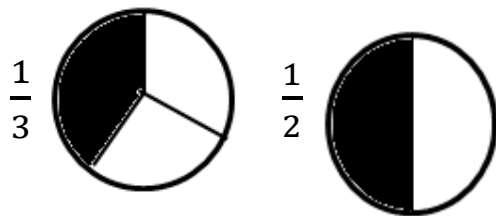
$\frac{1}{4}$



$\frac{1}{4}$ is smaller than $\frac{1}{2}$

3. Use the words “greater than” “less than” or equal to” to complete correctly

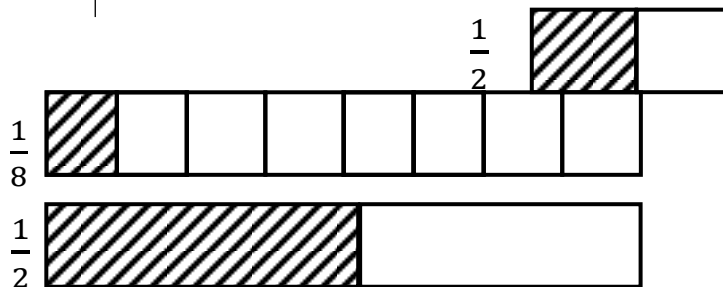
a) $\frac{1}{3}$ is less than $\frac{1}{2}$



b) $\frac{1}{2}$ is equal to $\frac{2}{4}$



c) $\frac{1}{2}$ is greater than $\frac{1}{8}$



Activity

1. Which fraction is smaller?

a) $\frac{1}{3}$ or $\frac{1}{2}$

b) $\frac{1}{4}$ or $\frac{2}{4}$

c) $\frac{1}{3}$ or $\frac{1}{6}$

2. Which fraction is bigger?

a) $\frac{1}{5}$ or $\frac{1}{4}$

b) $\frac{1}{6}$ or $\frac{1}{2}$

c) $\frac{1}{2}$ or $\frac{1}{4}$

3. Use “greater than”, “less than” or “equal to” to compare correctly.

a) $\frac{1}{3}$ is _____ $\frac{1}{4}$

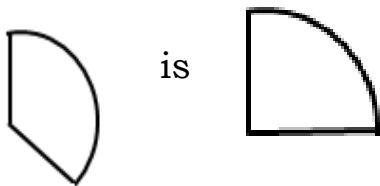
b) $\frac{1}{4}$ is _____ $\frac{1}{2}$

c) $\frac{1}{7}$ is _____ $\frac{1}{9}$

d) $\frac{1}{8}$ is _____ $\frac{1}{10}$

e) $\frac{1}{6}$ is _____ $\frac{1}{4}$

f)

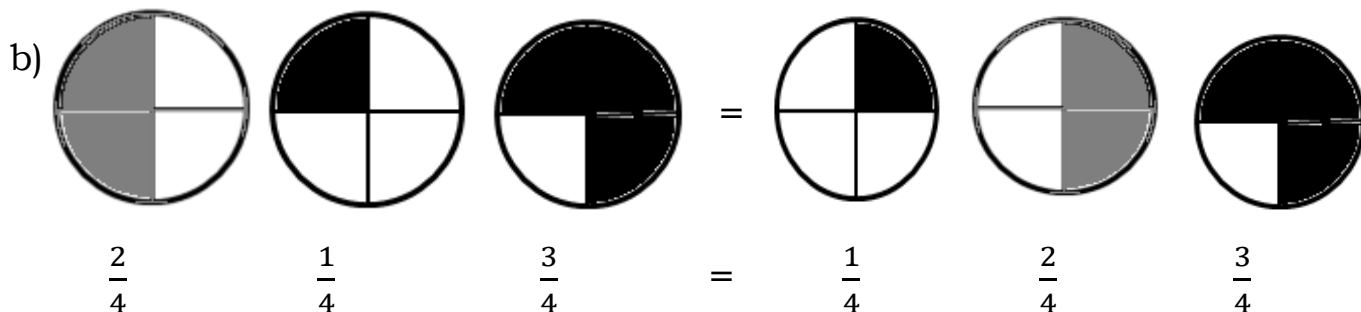


ORODERING FRACTIONS

Ascending fractions (from the smallest to the biggest)

Examples

a) $\frac{4}{5}, \frac{3}{5}, \frac{2}{5}, \frac{1}{5} = \frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}$



Activity

Arrange these fractions from the smallest.

1. $\frac{2}{3}, \frac{3}{3}, \frac{1}{3} =$

6. $\frac{8}{10}, \frac{2}{10}, \frac{1}{10}, \frac{9}{10} =$

2. $\frac{5}{6}, \frac{4}{6}$ and $\frac{3}{6} =$

7. $\frac{1}{2}, 1, \frac{1}{9}, \frac{1}{6}, \frac{1}{4} =$

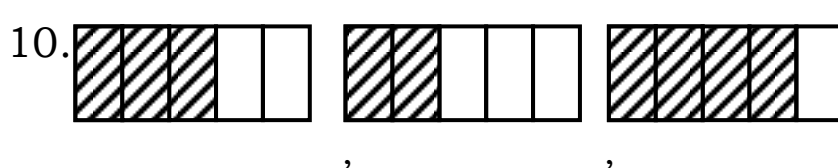
3. $\frac{1}{9}, \frac{1}{6}, \frac{1}{8}, \frac{1}{5} =$

8. $\frac{10}{12}, \frac{11}{12}, \frac{6}{12}, \frac{4}{12} =$

4. $\frac{2}{6}, \frac{4}{6}, \frac{1}{6}, \frac{6}{6} =$

9. $\frac{1}{5}, \frac{3}{5}, \frac{2}{5}, \frac{2}{5}, \frac{5}{5} =$

5. $\frac{7}{7}, \frac{4}{7}, \frac{3}{7}, \frac{2}{7}$ and $\frac{1}{7} =$

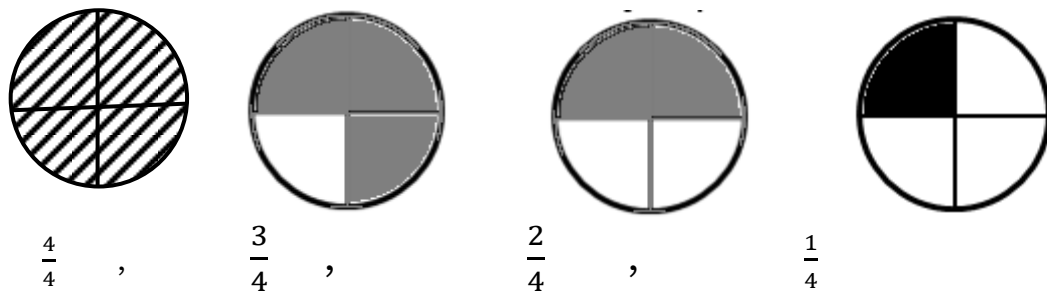
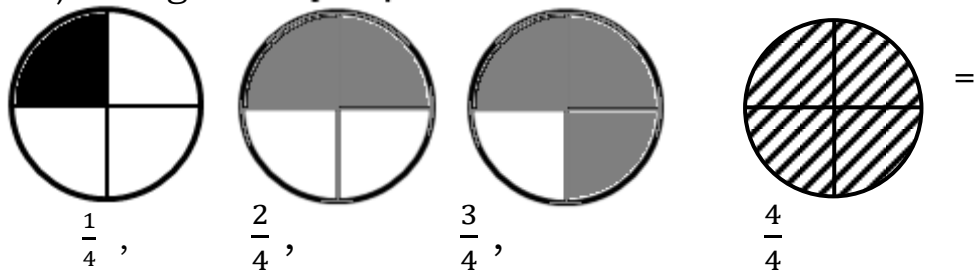


Ordering fractions in a descending order.

Starting from the biggest to the smallest)

Examples

a) Using illustrations.



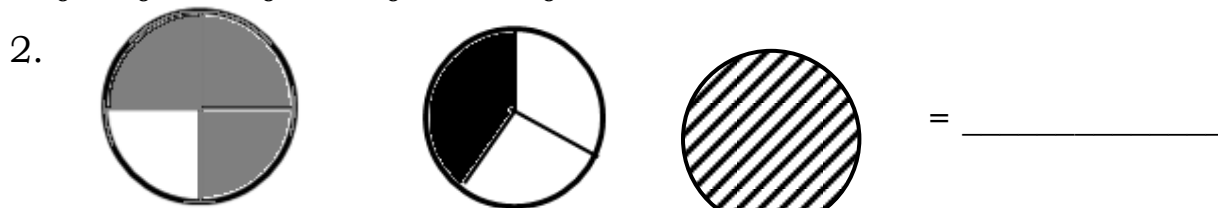
b) Without illustrations.

$$\frac{3}{5} , \frac{4}{5} , \frac{5}{5} \text{ and } \frac{2}{5} = \frac{5}{5} , \frac{4}{5} , \frac{3}{5} \text{ and } \frac{2}{5}$$

Activity

Arrange the following fractions in a descending order.

1. $\frac{1}{8}$, $\frac{2}{8}$, $\frac{8}{8}$, $\frac{5}{8}$ and $\frac{4}{8}$ = _____



3. $\frac{1}{4}$, 1, $\frac{2}{4}$ and $\frac{3}{4}$ = _____

4. $\frac{3}{6}$, $\frac{1}{6}$, $\frac{2}{6}$, $\frac{6}{6}$ and $\frac{4}{6}$ = _____



6. $\frac{2}{3}$, $\frac{2}{2}$, $\frac{2}{4}$, $\frac{2}{5}$ = _____

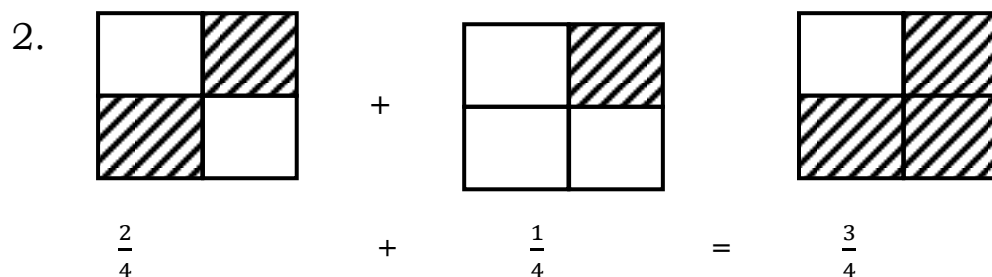
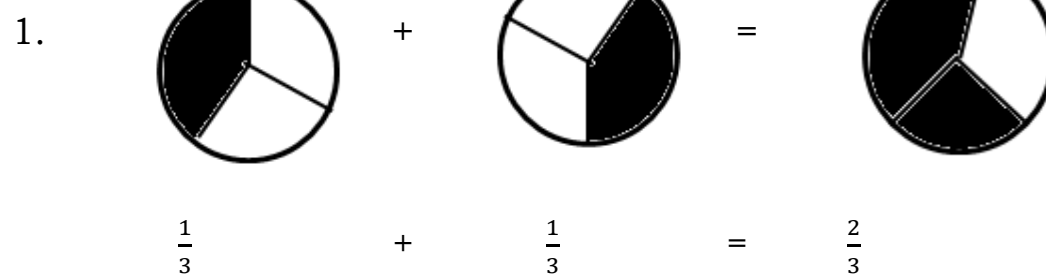
7. $\frac{1}{9}$, $\frac{2}{9}$, $\frac{9}{9}$, $\frac{3}{9}$, $\frac{7}{9}$ = _____

8. $\frac{4}{5}$, $\frac{4}{6}$, $\frac{4}{8}$, $\frac{4}{10}$ and $\frac{4}{9}$ = _____

Addition of fractions using diagrams.

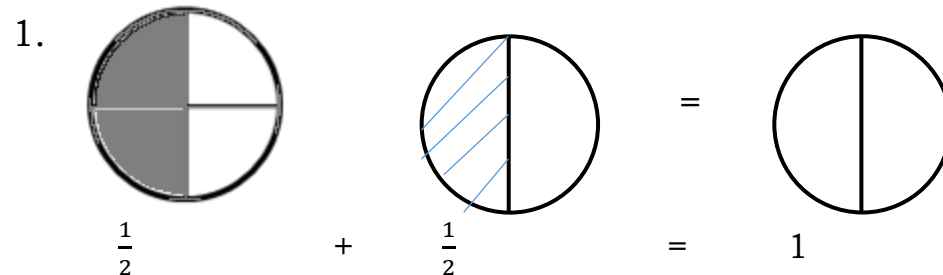
Examples

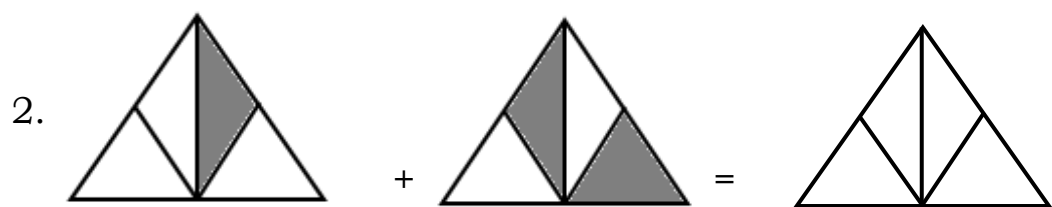
Add:



Activity

Add the following using diagrams.

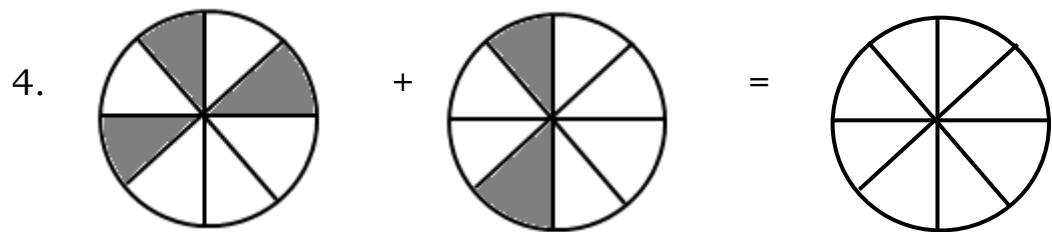




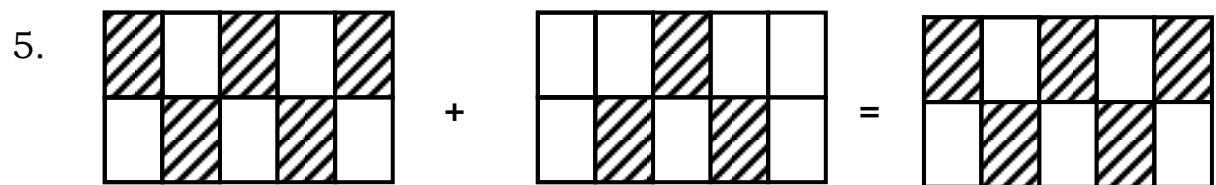
$$\frac{1}{4} + \frac{2}{4} = \underline{\hspace{2cm}}$$



$$\frac{2}{5} + \frac{2}{5} = \underline{\hspace{2cm}}$$



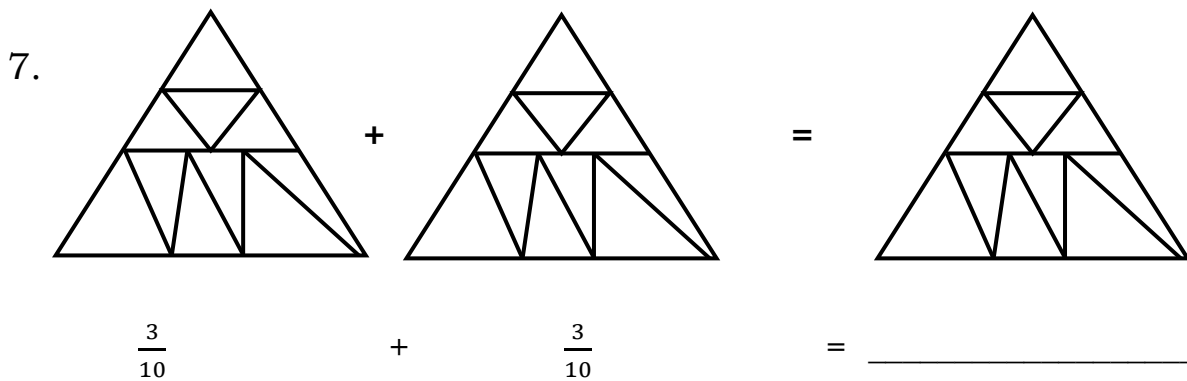
$$\frac{3}{8} + \frac{2}{8} = \underline{\hspace{2cm}}$$



$$\frac{5}{10} + \frac{3}{10} = \underline{\hspace{2cm}}$$



$$\frac{2}{7} + \frac{3}{7} = \underline{\hspace{2cm}}$$



Addition of fractions with the same denominators.

Examples

$$1. \frac{1}{4} + \frac{2}{4} = \frac{1+2}{4}$$

$$= \frac{3}{4}$$

$$2. \frac{1}{8} + \frac{3}{8} + \frac{1}{8} =$$

$$= \frac{1+3+1}{8}$$

$$= \frac{5}{8}$$

Activity

Add the following fractions correctly.

$$1. \frac{1}{3} + \frac{1}{3} \qquad 2. \frac{1}{5} + \frac{1}{5} + \frac{1}{5} \qquad 3. \frac{1}{15} + \frac{2}{15} + \frac{14}{15}$$

$$3. \frac{1}{4} + \frac{2}{4} \qquad 4. \frac{1}{6} + \frac{2}{6} + \frac{2}{6} \qquad 5. \frac{1}{7} + \frac{2}{7}$$

$$6. \frac{2}{12} + \frac{3}{12} + \frac{2}{12} \qquad 7. \frac{1}{9} + \frac{4}{9} \qquad 8. \frac{7}{11} + \frac{2}{11}$$

Application of fractions involving addition.

Keywords

- Altogether – total
- Sum – plus
- More

Examples

1. A man read $\frac{1}{9}$ of the newspaper on Monday and $\frac{3}{9}$ of it on Tuesday. What fraction did he read altogether?

$$\frac{1}{9} + \frac{3}{9} = \frac{1+3}{9} = \frac{4}{9}$$

2. Find the sum of $\frac{7}{17}$ and $\frac{3}{17}$

$$\begin{aligned}\frac{7}{17} + \frac{3}{17} &= \frac{7+3}{17} \\ &= \frac{10}{17}\end{aligned}$$

Activity

1. A teacher marked $\frac{2}{5}$ of the books in the morning and $\frac{2}{5}$ in the afternoon. What fractions the books did the teacher mark?
2. I walked $\frac{4}{9}$ of the journey and I ran $\frac{3}{9}$ of it. What fraction did I cover altogether?
3. If $\frac{1}{4}$ of the school garden is covered with maize and $\frac{4}{8}$ with beans. What fraction is covered with both crops?
4. Musa ate $\frac{7}{15}$ of the cake and Namugga ate $\frac{4}{10}$ of the cake. What fraction of the cake did they eat?
5. Jane dug $\frac{3}{10}$ of the garden and Deo dug $\frac{4}{10}$. What fraction did they dig altogether?
6. Andrew wrote $\frac{3}{8}$ of the book in the morning and $\frac{4}{8}$ in the evening. What fraction of the book did he write.
7. Find the sum of $\frac{17}{15}$ and $\frac{4}{15}$
8. A child walked $\frac{3}{11}$ of the journey and ran $\frac{5}{11}$ of the journey. What fraction of the journey did the child cover?

Subtraction of fractions

Subtraction of fractions using diagrams.

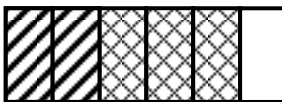
Examples

1. Subtract: $\frac{3}{5} - \frac{1}{5}$



$$\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$$

3. Subtract: $\frac{5}{6} - \frac{3}{6}$



$$\frac{5}{6} - \frac{3}{6} = \frac{2}{6}$$

2. Work out: $\frac{3}{4} - \frac{2}{4}$



$$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$$

Activity

Subtract the following using diagrams.

1. $\frac{9}{10} - \frac{4}{10}$

2. $\frac{7}{7} - \frac{3}{7}$

3. $\frac{6}{7} - \frac{3}{7}$

4. $\frac{6}{8} - \frac{2}{8}$

5. $\frac{6}{7} - \frac{4}{7}$

6. $\frac{11}{16} - \frac{4}{16}$

Subtraction of fraction with same denominators.

Examples

$$\begin{aligned} 1. \quad \frac{3}{6} - \frac{1}{6} &= \frac{3-1}{6} \\ &= \frac{2}{6} \end{aligned}$$

$$\begin{aligned} 3. \quad \frac{8}{9} - \frac{6}{9} &= \frac{8-6}{9} \\ &= \frac{2}{9} \end{aligned}$$

$$\begin{array}{lcl}
 2. \frac{7}{10} - \frac{2}{10} & = & \frac{7}{10} - \frac{2}{10} \\
 & = & \frac{7-2}{10} \\
 & = & \frac{5}{10}
 \end{array}
 \qquad
 \begin{array}{lcl}
 4. \frac{6}{6} - \frac{4}{6} & = & \frac{6-4}{6} \\
 & = & \frac{2}{6}
 \end{array}$$

Subtraction of a fraction from a whole number (1)

Example(s)

$$\begin{array}{lcl}
 1. \frac{9}{9} - \frac{3}{9} & = & \frac{9-3}{9} \\
 & = & \frac{6}{9}
 \end{array}
 \qquad
 \begin{array}{lcl}
 3. 1 - \frac{1}{3} & = & \frac{3}{3} - \frac{1}{3} \\
 & = & \frac{3-1}{3} \\
 & = & \frac{2}{3}
 \end{array}$$

$$\begin{array}{lcl}
 2. 1 - \frac{2}{5} & = & \frac{5}{5} - \frac{2}{5} \\
 & = & \frac{5-2}{5} \\
 & = & \frac{3}{5}
 \end{array}
 \qquad
 \begin{array}{lcl}
 4. \frac{6}{6} - \frac{4}{6} & = & \frac{6-4}{6} \\
 & = & \frac{2}{6}
 \end{array}$$

Word statements about subtraction of fractions

Examples.

a) Take away

$$\frac{4}{9} \text{ from } \frac{8}{9}$$

$$\begin{array}{lcl}
 \frac{8}{9} - \frac{4}{9} & = & \frac{8-4}{9} \\
 & = & \frac{4}{9}
 \end{array}$$

b) A girl had an orange. She gave $\frac{3}{4}$ of it to her friend. What fraction remained.

$$\begin{array}{lcl}
 = \frac{4}{4} - \frac{3}{4} \\
 = \frac{4-3}{4} \\
 = \frac{1}{4} \text{ remained}
 \end{array}$$

c) What fraction was left if Ojuma had $\frac{7}{8}$ of an apple and ate $\frac{3}{8}$ of it


$$\begin{array}{lcl}
 \frac{7}{8} - \frac{3}{8} & = & \frac{7-3}{8} \\
 = \frac{4}{8} & \text{was left} &
 \end{array}$$

Activity

1. A garden has 8 equal parts. 3 parts out of 8 are planted with maize. What fraction remained?
2. Juma painted $\frac{7}{10}$ of his house on Monday. What fraction of his house is not painted.
3. Fausta ate $\frac{4}{5}$ of an orange. What fraction remained?
4. After travelling $\frac{1}{3}$ of the journey, what fraction is left for me to cover the journey?
5. A shopkeeper sold $\frac{4}{15}$ of a bag of sugar. What fraction of the sugar in the bag was left?
6. A bowl was $\frac{11}{12}$ full of sugar. I used $\frac{5}{12}$ of it. What fraction was left?
7. What is the difference between $\frac{11}{12}$ and $\frac{6}{12}$
8. Remove $\frac{5}{6}$ from 1
9. Subtract:
 - a) $\frac{7}{15} - \frac{4}{15}$
 - b) $\frac{8}{10} - \frac{3}{10}$

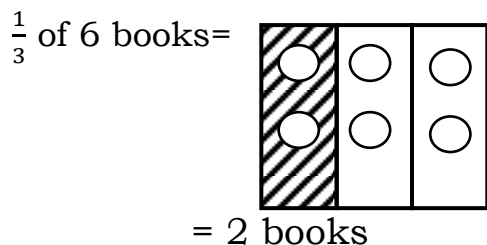
Multiplication of a fraction by a fraction and whole numbers.

Examples

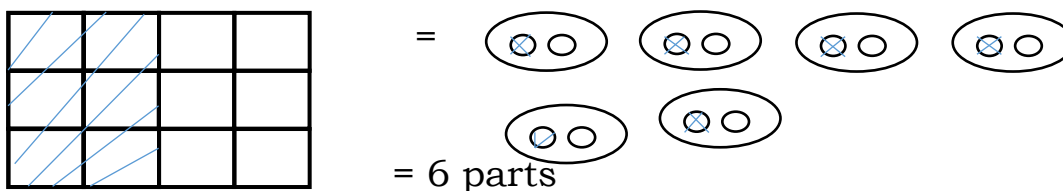
1. Multiply: $\frac{1}{2} \times \frac{1}{3} = \frac{1}{2} \times \frac{1}{3}$
 $= \frac{1}{6}$
2. Work out: $\frac{1}{3} \times \frac{2}{5} = \frac{1 \times 2}{3 \times 5}$
 $= \frac{2}{15}$
3. Find $\frac{1}{3}$ of 6 books.
 $= \frac{1}{3} \times 6 \text{ books}$

 $= 2 \text{ books}$

OR

$$\begin{aligned}
 \frac{1}{3} \text{ of } 6 \text{ books} &= \left(\frac{1}{3} \times \frac{6}{1}\right) \text{ books} \\
 &= \left(\frac{1 \times 6}{3 \times 1}\right) \text{ books} \\
 &= \left(\frac{6}{3}\right) \text{ books} \\
 &= (6 \div 3) \text{ books} \\
 &= 2 \text{ books}
 \end{aligned}$$



4. Shade $\frac{1}{2}$ of the shape below



Activity

1. Work out the following.

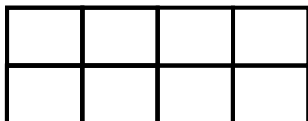
a) $\frac{1}{2} \times \frac{3}{4} =$ b) $\frac{2}{3} \times \frac{2}{5} =$ c) $\frac{1}{5} \times \frac{1}{2} =$

2. What is $\frac{1}{2}$ of 10 apples?

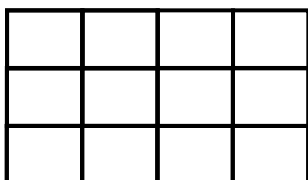
3. What is $\frac{2}{3}$ of 12 sweets?

4. Find $\frac{1}{4}$ of 16 books?

5. Shade $\frac{1}{2}$ of the shape below.



6. Shade $\frac{2}{3}$ of the shape below.



Writing mixed fractions in words and vice versa.

Writing mixed fractions in words.

Examples

Write the following mixed fractions in words.

- a) $1\frac{2}{3}$ = One and two thirds
- b) $2\frac{1}{4}$ = Two and one quarter
- c) $4\frac{3}{5}$ = Four and three fifths
- d) $1\frac{2}{6}$ = One and two sixths

Writing mixed fractions in figures.

Examples

Write the following in figures.

- 1. One and three quarters = $1\frac{3}{4}$
- 2. Two and four sevenths = $2\frac{4}{7}$
- 3. Three and one eighth = $3\frac{1}{8}$

Activity

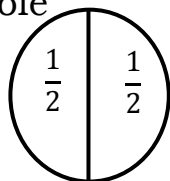
- 1. Write the following fractions in words.
 - a) $1\frac{3}{5}$
 - b) $2\frac{1}{10}$
 - c) $4\frac{1}{3}$
 - d) $1\frac{4}{9}$
 - e) $5\frac{1}{2}$
- 2. Write the following in figures.
 - a) Three and onehalf
 - b) Two and three quarters.
 - c) One and four fifths
 - d) Four and two sevenths

Finding fractions in wholes

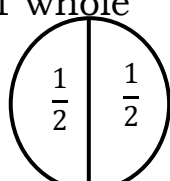
Examples

1. How many halves are in 2 wholes?

1 whole

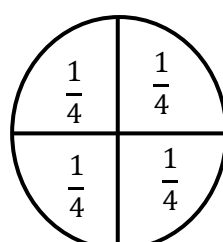
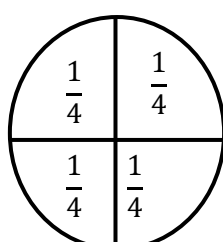
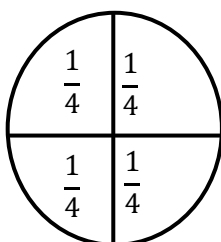
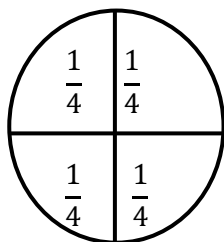


1 whole



$$2 \text{ halves} + 2 \text{ halves} = 4 \text{ halves}$$

2. How many quarters are in 4 wholes?



$$4 \text{ quarters} + 4 \text{ quarters} + 4 \text{ quarters} + 4 \text{ quarters} = 16 \text{ quarters}$$

Activity

- How many halves are in 3 wholes?
- How many thirds are in 2 wholes?
- How many quarters make 2 wholes?
- How many halves make 5 wholes?
- Jane has 4 wholes. How many thirds can she get from the 4 wholes?

END OF UNIT TEST

1. Name the parts of a fraction.

$$\frac{4}{5} \rightarrow \underline{\hspace{2cm}}$$
$$\frac{4}{5} \rightarrow \underline{\hspace{2cm}}$$

2. _____ is part of a fraction.

3. Write $\frac{3}{4}$ in words.

4. Name the shaded fraction.



$$= \underline{\hspace{2cm}}$$

5. Write two fifths in figures.

6. Use “greater” than, “smaller than, or “equal to” to complete the statements.

$$\frac{1}{3} \quad \underline{\hspace{2cm}} \quad \frac{1}{9}$$

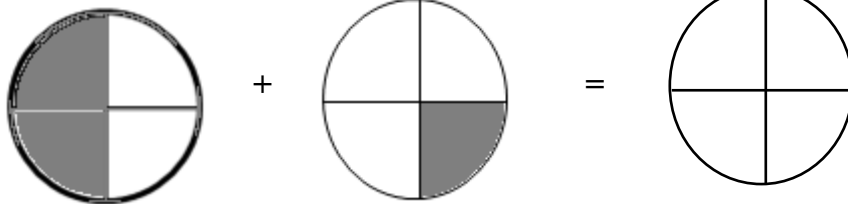
$$\frac{3}{7} \quad \underline{\hspace{2cm}} \quad \frac{5}{7}$$

$$\frac{2}{8} \quad \underline{\hspace{2cm}} \quad \frac{1}{4}$$

7. Arrange the following fractions starting from the smallest.

$$\frac{1}{6}, \quad \frac{1}{3}, \quad \frac{1}{5}, \quad \frac{1}{2}, \quad \frac{1}{8}, \quad \frac{1}{4}$$

Add:



8. What is the sum of $\frac{2}{5}$ and $\frac{1}{5}$?

9. Take away $\frac{4}{15}$ from $\frac{7}{15}$

10. Circle the smallest.

$$\frac{1}{2}, \quad \frac{1}{4} \quad \text{and} \quad 1$$

11. Which fraction is bigger?

$$\frac{1}{10} \quad \text{or} \quad \frac{1}{3}$$

12. What is $\frac{2}{3}$ of 12 apples?

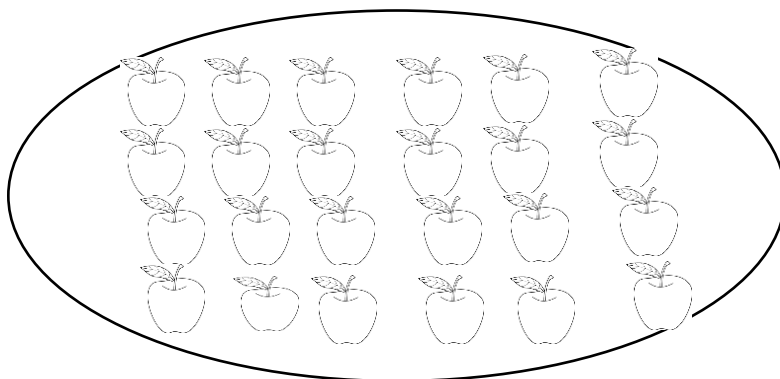
13. Work out $\frac{2}{4} \times \frac{1}{2}$

14. Nakato walked $\frac{5}{11}$ of the journey and ran $\frac{3}{11}$ of the journey.

What fraction of the journey did she cover?

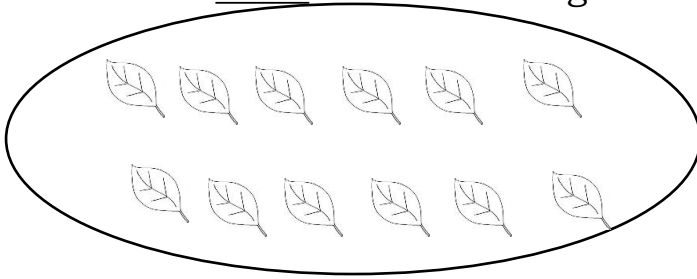
15. How many halves are in 2 wholes?

16.



- (i) Form groups of 4 tomatoes.
- (ii) There are _____ groups of _____ tomatoes
- (iii) There are _____ tomatoes altogether.

17.



- a) Form groups of 4 leaves.
- b) There are _____ groups of _____ leaves.
- c) There _____ leaves altogether.

DATA HANDLING

Reasons why we teach data handling.

- Allows children to make sense of information.
- To identify patterns and trends.
- O predict and plan for the future.
- To encourage research.

Application of data handling in our day to day life.

- In voting to count voters, votes.
- In carrying out population census.
- In budgeting.
- In libraries when counting m=number of books. Organizing them.
- In stock taking.
- Recording information about weather.
- Recording the progress of learners in a class, stream, school, etc

Vocabulary: picto-graphs, bar graphs, data, scale, patterns, interpretation.

Materials: charts, glue, newspapers, books, flash card, seeds




















Pictographs without a scale

Definition

A pictograph is a graph drawn using diagrams.

Examples


















The graph below shows the number of balls each school has.

Kyebando infant p/s	 
Hormisdallen p/s	      
Niyo light p/s	  
Precious gift p/s	 
Clevers' origin p/s	    

- a) Which schools have the least number of balls?
Precious gift p/s and Kyebando infant P/S
- b) Which school has the highest number of balls?
Hormisdallen p/s
- c) Which schools have the same number of balls?
Kyebando infant P/S and Precious gift P/S
- d) How many balls does Kyebando infant p/s, Hormisdallen p/s and Niyo light p/s have altogether? $= (2 + 7 + 3)$ balls.
 $= 12$ balls
- e) How many more balls are in Hormisdallen p/s than Clevers' origin p/s?
 $7\text{balls} - 5\text{balls} = 2$ more balls



















Activity

1. The graph below shows the number of books in different pupils' bags.

Anthony	      
Winnie	   
Racheal	
Steven	   
Godfrey	 

- Which pupils has the least number of books?
- Name the pupils with the same number of books?
- How many more books does Anthony have than Godfrey?
- How many books do all pupils have?
- How many books does Winnie, Racheal and Steven have altogether?
- How many books does the pupil who has the highest number of books have?

2. The graph below shows the number of drums made by different men.



Kasibante	 
Mwesigwa	  
Opolot	     
Mubiru	  
Odeke	   

- How many drums did Odeke make?
- Which men made the same number of drums?
- Which man made 2 drums?

- d) How many drums did Opolot, Mubiru and Odeke make altogether?
- e) If Kasibante sold each drum at shs. 2000. How much money did he get?
- f) How many more drums did Opolot make than Odeke?
- g) How many drums were made by the five men altogether?



Interprering information on a picto graph with a scale.

Examples

1. Given that  represents 4 flowers, how many flowers are represented by  ?


$$\text{1 flower icon} = 4 \text{ flowers}$$

$$\text{3 flower icons} = (4+4+4+4) \text{ flowers} \\ = 16 \text{ flowers}$$

2. Given that  represents 3 tomatoes, how many tomatoes are represented by  ?

$$\text{1 tomato icon} = 3 \text{ tomatoes}$$

$$\text{3 tomato icons} = 3 \text{ tomatoes} + 3 \text{ tomatoes} + 3 \text{ tomatoes} \\ = 9 \text{ tomatoes}$$

3. If  represents 2 cups, draw pictures to represents 10 cups.

$$2 \text{ cups} = \text{1 cup icon}$$

$$10 \text{ cups} = \frac{10}{2} \\ = 5 \text{ pictures}$$

$$10 \text{ cups} = \text{5 cup icons}$$














4. If  represents 4 balls, draw pictures to represent 12 balls.

$$4 \text{ balls} = \text{1 soccer ball icon}$$


$$12 \text{ balls} = \frac{12}{4} \\ = 3 \text{ pictures}$$
















$$12 \text{ balls} = \text{3 soccer ball icons}$$

Activity

- Given that  represents 3 books, how many books are represented by     
- If  represents 5 tins, how many tins are represented by     ?
- Given that  represents 4 flowers, draw pictures to represent 16 flowers.
- If  represents 2 balls, draw pictures to represent 14 balls.

The pictograph below shows the number of books given to five best pupils in P.3 class. Study it and use it to answer the questions that follow.

 Stands for 3books

Elijah	  
Isaiah	
Annet	    
Josephine	 
kapere	   

- a) How many books did Annet get?

Annet got 5books = 3books + 3 books + 3 books + 3 books + 3books.

= 15books

- b) How many books did Josephine get?

Josephine got 2books = 3books + 3 books
= 6books

c) Who got the least number of books.

Isaiah

d) How many books were given to Isaiah?

$$\begin{aligned} \text{Isaiah got 1 books} &= (1 \times 3) \text{ books} \\ &= \underline{3 \text{ books}} \end{aligned}$$

e) How many books did Josephine and Kapere get altogether?

$$\begin{aligned} \text{Josephine 2 books} &= 3\text{books} + 3 \text{ books} \\ &= \underline{6 \text{ books}} \end{aligned}$$

$$\begin{aligned} \text{Kapere 4boos} &= 3\text{books} + 3\text{books} + 3\text{books} + 3\text{books} \\ &= \underline{12 \text{ books}} \end{aligned}$$

$$\begin{aligned} \text{Altogether} &= 6\text{books} + 12\text{books} \\ &= \underline{18\text{books}} \end{aligned}$$

f) How many more books did Kapere get than Isaiah?



$$\begin{aligned} \text{Kapere 4books} &= (3+3+3+3) \text{ books} \\ &= \underline{12\text{books}} \end{aligned}$$

$$\begin{aligned} \text{Isaiah 1book} &= (3 \times 1) \text{ books} \\ &= 3\text{books} \end{aligned}$$

$$\begin{array}{r} 01 \quad 12\text{books} \\ - \quad 3\text{books} \\ \hline 0 \quad 9\text{more books} \end{array}$$

Activity

The pictograph below shows the number of flowers sold by Mr. Kiviiri in a week. Study it and answer the questions that follow.

Monday	 
Tuesday	   
Wednesday	  
Thursday	      
Friday	     
Saturday	   



Stand for 2flowers

- How many flowers were sold on Monday?
- On which day were the largest number of flowers sold?
- On which two days was the same number of flowers sold?
- On which day did Kiviiri sell 14 flowers?
- How many more flowers were sold on Friday than Tuesday?
- How many flowers were sold on Wednesday and Saturday altogether?

Drawing simple picto-graphs

Example

Pupils were told to make balls each of them made the following.

James made 6 balls.























Joan made 3 balls.

David made 5 balls.

Shalon mde 6 balls.

Eric made 2 balls.

The above information can be shown in a table

Names	Number of balls made by each pupil
James	     
Joan	  
David	    
Shalon	     
Eric	 

Activity

1. Study the information below and use it to complete the table correctly.

A P.3 teacher orders six girls to collect leaves from the school compound.

Claire collected a leaves.

Martha collected 9 leaves.


Janice collected 1 leaf.

Brendah collected 5 leaves.

Jemimah collected 0 leaves.








Violah collected 4 leaves

Use the information above to complete the picto-graph below.

Names	Number of leaves collected by each girl.
Claire	
Martha	
Janice	
Brendah	
Jemimah	
Violah	

2. Use the information below to complete the picto-graph.
Hormisdallen c/taches made a list of brooms each class needed as shown below.
Teacher Mercy 3 brooms.
Teacher Gloria 5 brooms.
Teacher Opio 4 brooms.
Teacher Julian 2 brooms.
Teacher Robert 3 brooms.
Teacher Godfrey 6 brooms.

Complete the table correctly.

Teachers' names	Number of brooms
Mercy	  _____
Gloria	
Opio	 _____ 
Julian	
Robert	
Godfrey	   _____

3. Draw a pictograph and show the following information on it.

Trees planted by Hormisdallen schools.

Hormisdallen Gayaza 12 trees

Hormisdallen Kamwokya 7 trees.

Hormisdallen Kyebando 10 trees.

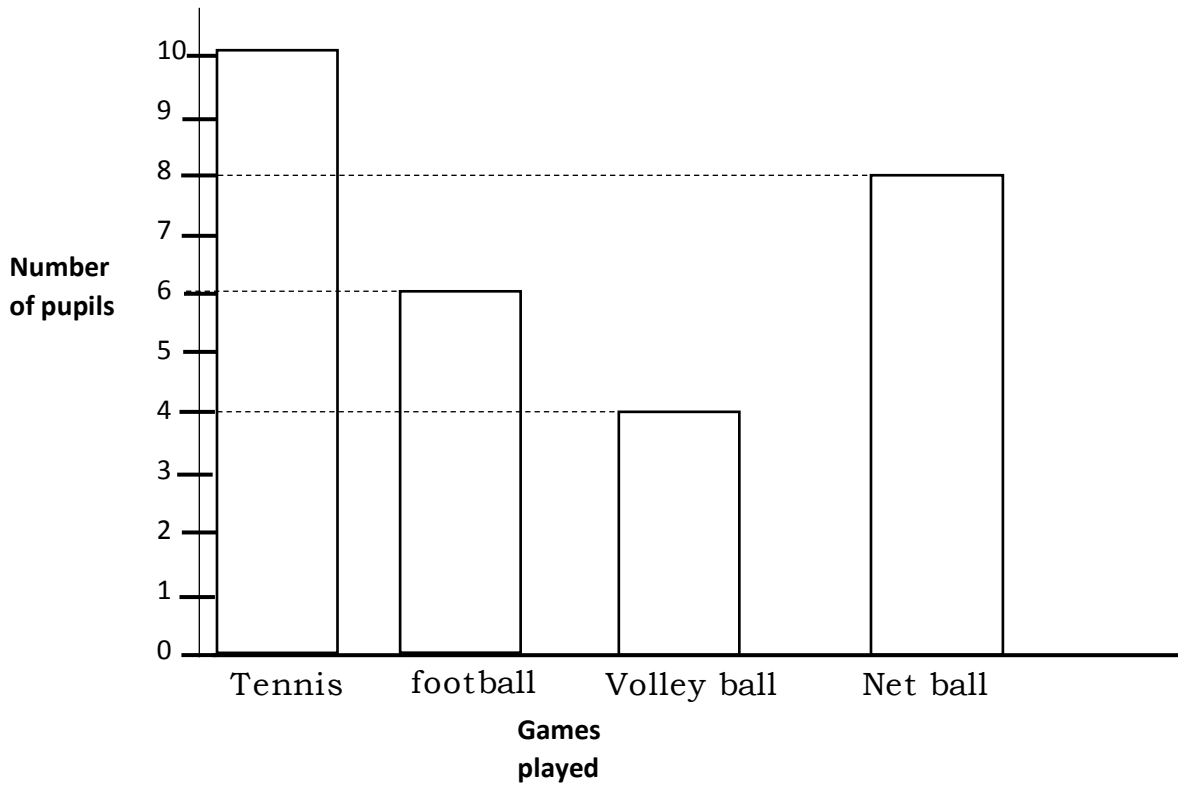
Hormisdallen Kiteezi 9 trees.

Name of school	Number of trees planted

Interpreting information on bar graphs.

Examples

1. The graph below shows the number of pupils who played games in P.3.



Types of games.

Questions

- How many pupils played football?
6pupils
- How many pupils played volley ball?
4pupils
- Which game has the least number of players?
Volley ball
- Which game has the biggest number of player?
Tennis
- Find the total number of pupils who played games.

Tennis	= 10	$6 + 4 + 8 = 18$
Football	= 6	$1 + 1 = 2$
Volley ball	= 4	
Netball	= 8	
	<u>28pupils</u>	
	18	

6. How many pupils played Tennis more than volley ball?

Tennis = 10

Volleyball = 4

6 more pupils

7. How many pupils played netball more than volley ball?

Netball = 8

Volleyball = 4

4 more pupils

8. What is the least liked game?

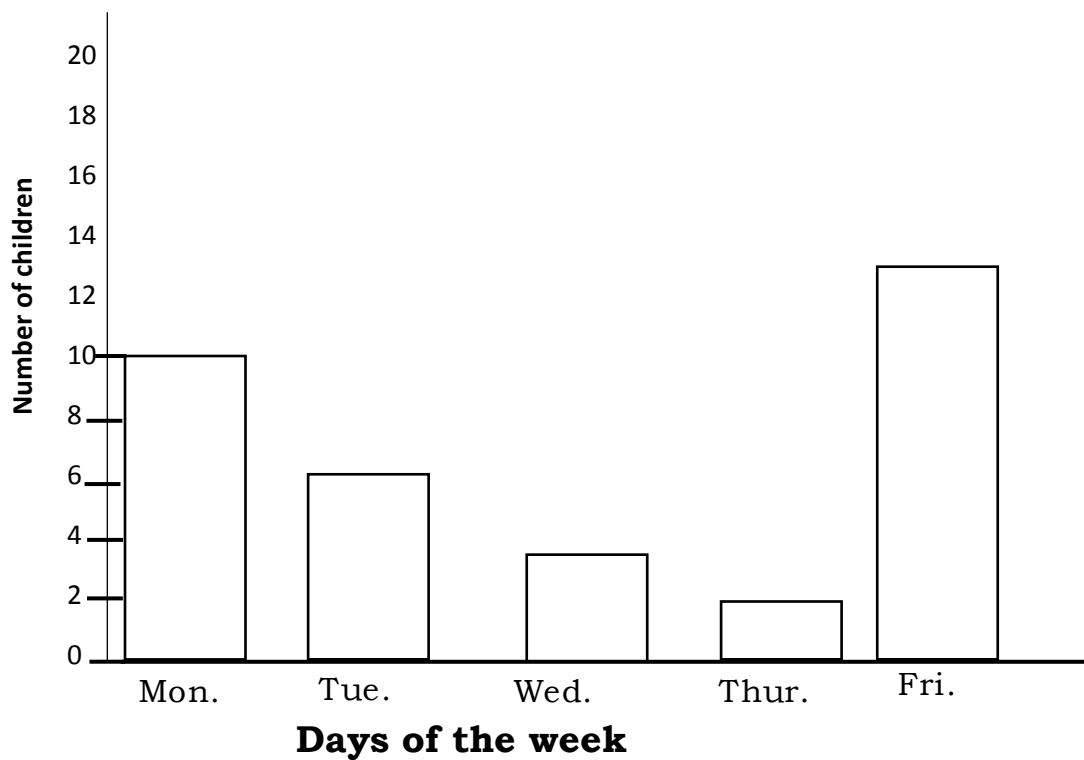
Volley ball

9. Which is the most liked game?

Tennis

Activity

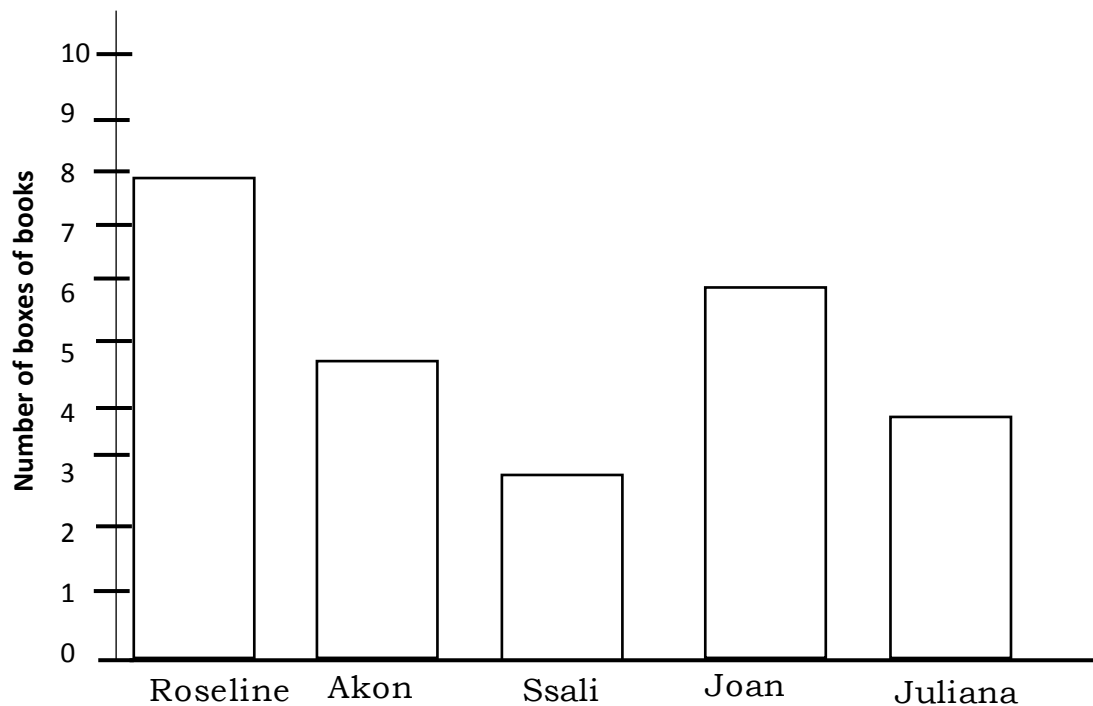
1. The graph below shows the number of late comers recorded in P.3 in a week.



Questions

- How many children came late on Monday?
- How many children came late on Tuesday?
- Which day had the least number of late comers?
- Find the number of children who came late on Friday.
- How many children came late that week?

2. The graph below shows the number of boxes of books carried by P.3 children to the headteacher's office.



Questions

- Who carried the least number of boxes of books?
- Who carried the largest number of boxes of books?
- What was the total number of boxes of books carried by Akon and Joan?
- What is the difference between the largest and least number of boxes of books carried?

Showing/representing information on a bar-graph/column graph.

Example

A headteacher aksed Roshin, Acema, Ssali and Kampani to carry boxes of books to his office.

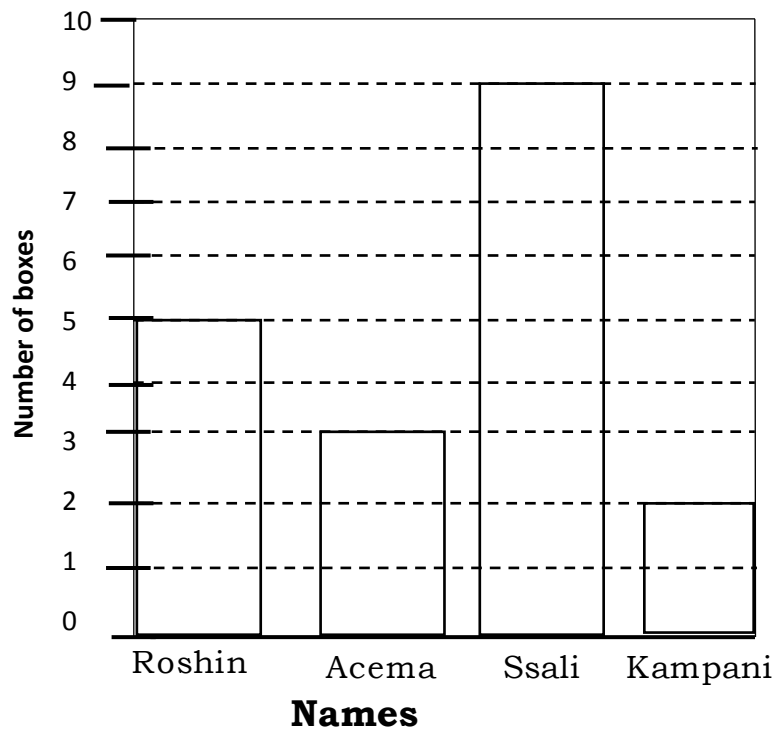
Roshin carried 5boxes.

Acema carried 3books.

Ssali carried 8 boxes.

Kampani carried 2 boxes.

Represent the above information on a bar graph below.



Note: Separate for us the bars and do not shade like in the previous lessons.

Questions

- Who carried the least number of boxes?
Kapani
- Who carried the largest number of boxes?
Ssali
- What is the total number of boxes carried by Ssali and Kampani?
 $= 8\text{books} + 2\text{boxes}$
 $= 10 \text{ boxes}$

Activity

- What is the difference between the largest and the least number of boxes carried?
- If each box had 50 boxes, how many boxes did Acema carry?
- What is the sum of boxes carried by Acema and Kampani?
- How many more boxes did Ssali carry than Roshin?
- How many boxes did Acema and Kampani carry altogether?
- How many boxes did Ssali carry?

Interpreting information on tables.

Examples

The table below shows the number of cars recorded by Mike in a week.

Days of the week	No. of cars
Sunday	5
Monday	12
Tuesday	10
Wednesday	8
Thursday	9
Friday	10
Saturday	7

- On which day did he count the biggest number of cars?
On Monday
- On which two days Mike count the same number of cars?
On Tuesday and Friday
- When did Mike count the least number of cars?
On Sunday
- Find the number of cars he counted the whole week.

Sunday = 3 4

Monday = 1 2

Tuesday = 1 0

Wednesday = 8

Thursday = 9

Friday = 1 0

Saturday = + 7

6 1cars

3 1

5+2+0+8+9+0+7 = 37

3+1+1+1






Activity






The table below shows the number of chicken different farms have.

Names of farmer	John	Kamoga	Sarah	Mugaga	Ruth
Number of chicken	12	15	18	30	10

- Name the farmer with 18 chicken.
- How many chicken does Kamoga and Ruth have altogether?
- Which farmer has the least number of chicken?
- How many more chicken does Mugaga have than Sarah?
- Write the number of chicken John has in words.
- How many chicken does Kamoga need to have the same number of chicken as Sarah?

Data handling (Topical questions)

- A goat has 4 legs. How many legs do two goats have?
- If  represents 6 balls' how many balls do  represent?
- (a) If  = 1 chair, use the information below to complete the pictograph.
James made 2 chairs, Ivan made 4 chairs, Drrick made 5 chair, Moses made 1 chair.

Names	Number of chairs made
James	
Derrick	    
Ivan	
Moses	

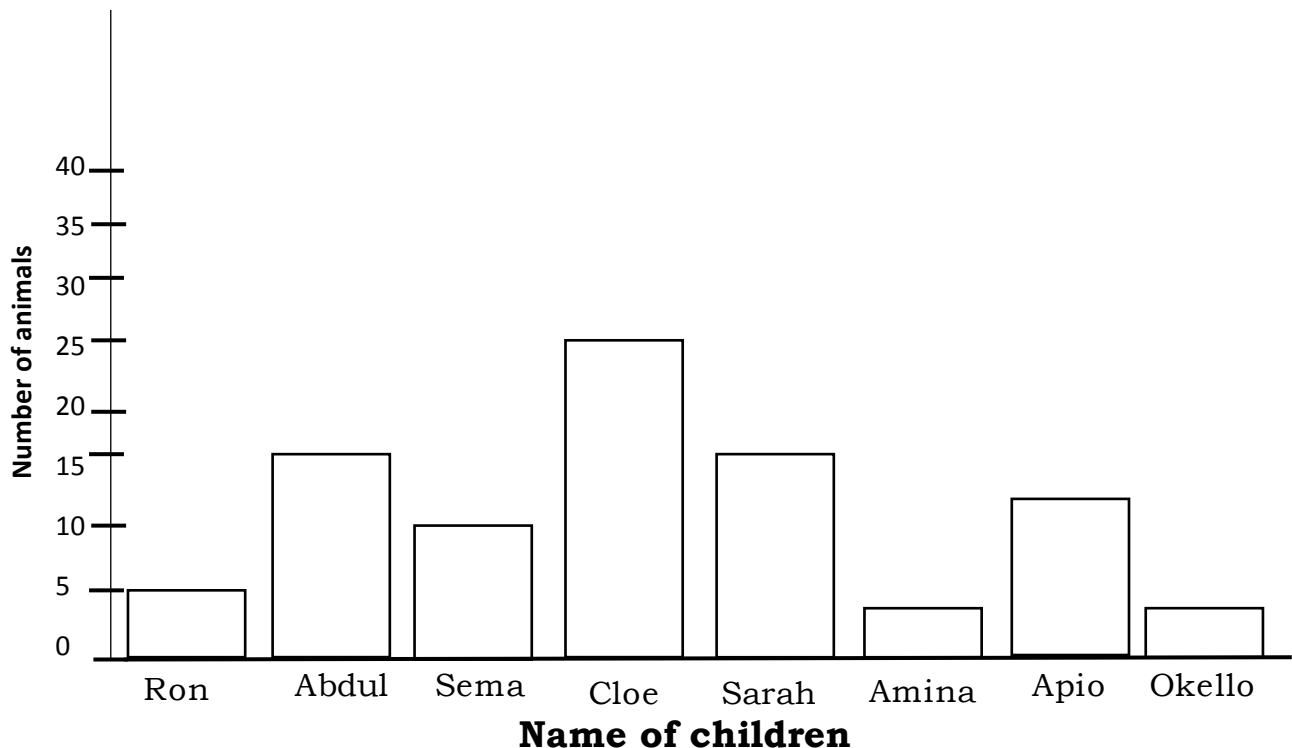
- How many chairs were made by the 4 men all together?
- How many more chairs did Derrick make than Moses?

4. Given that: If one ruler represent 10 rulers. How many rulers can represent 30 rulers?



stand for 14 chairs. Hoe many chairs does  stand for?

5. Study the Bar graph below and answer the questions that follow.



Questions

- How many animals does Abdul keep?
- Who has the highest number of animals?
- Who has the least number of animals?
- How many animals are kept altogether?
- Who of the children have the same number of animals?
- How many more animals does Sarah keep than Amina?
- Find the difference between the highest number of animals and the lowest number of animals.
- Find the total number of animals kept by Abdul and Apio.

GEOMETRY

REASONS FOR TEACHING GEOMETRY

- To provide learners with skills to build their logical thinking.
- To enable learners connect classroom objects in real world contexts.
- To develop problem solving skills in learners.
- To enable learners make rightful decisions in deciding which materials to use and which design to make.

Application of geometry in our to day life.

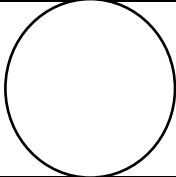
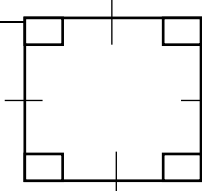
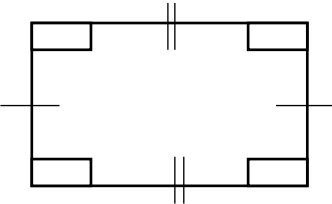

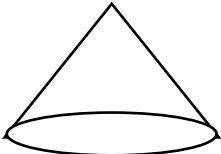
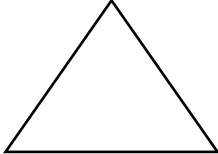
- Construction of buildings.
- Computer graphics
- Art
- Interior design
- Plumbing

Vocabulary: cube, cuboid, cylinder, cone, kite, rectangle, triangle, trapezium, square, oval, semi-circle, circle

Drawing and naming shapes

Examples

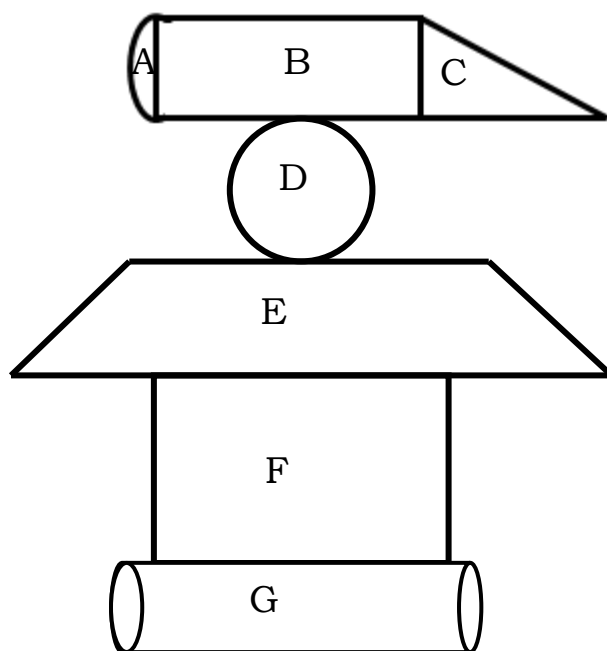
Name the following shapes

	
Circle	Square
	
Rectangle	Semi circle
	
Cone	Triangle

Kite	Trapezium
Cylinder	Oval

Activity

1. Name the shapes that were used to form the figure below.



- A _____
 B _____
 C _____
 D _____
 E _____
 F _____
 G _____

2. Draw the shapes below.

a) Kite

b) oval

c) cube

d) square

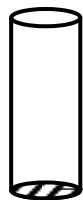
e) rectangle

f) cuboid

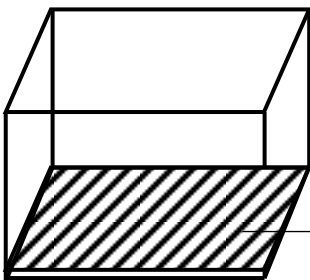
Identifying plane figures on different solid shapes

Examples

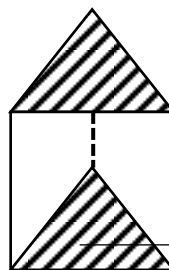
1. Name the shaded shapes from the figures below.



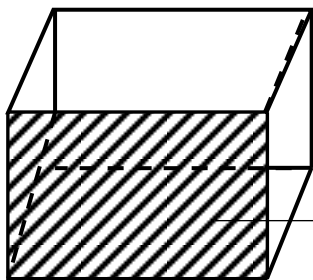
Circle



rectangle



triangle



square

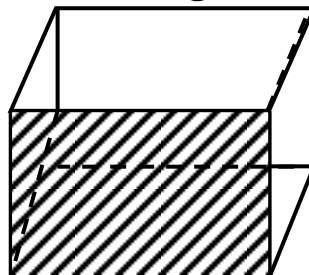
Activity

Name the shapes which have been shaded in the figures below.

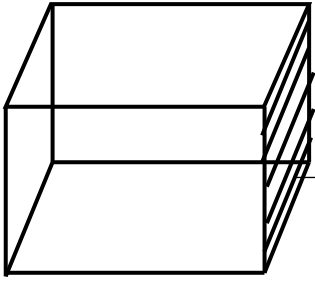
a)



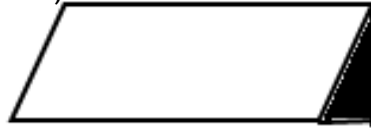
b)



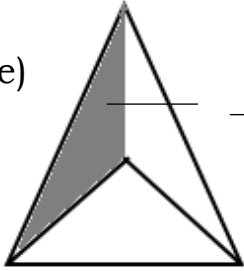
c)



d)



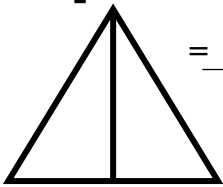
e)



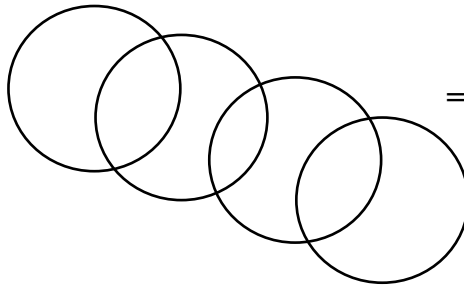
Counting shapes

Examples

a)

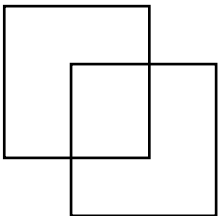


= 3triangle



= 4circle

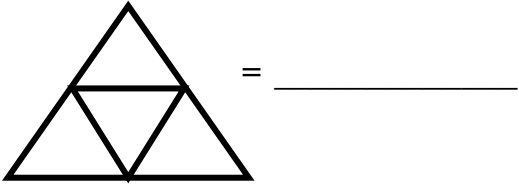
c)



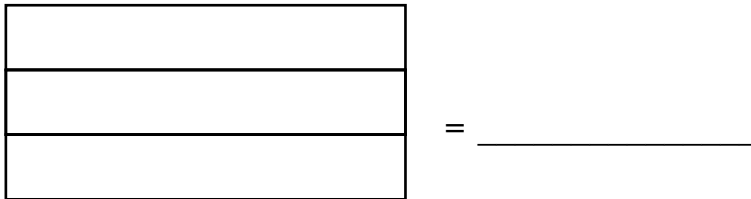
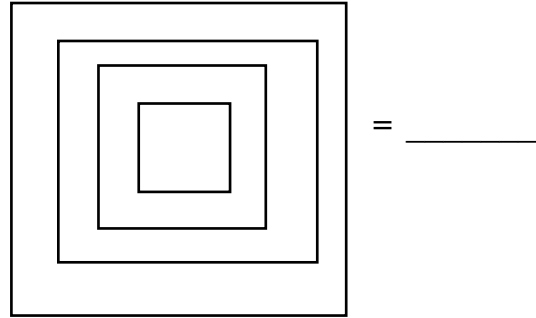
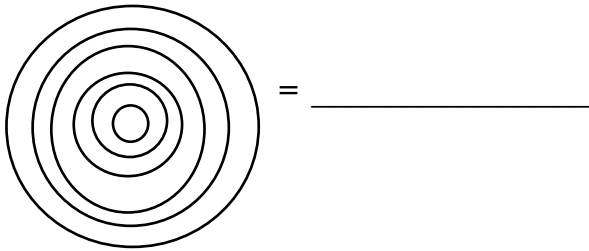
= 3squares

Activity

1. How many triangles can you see?



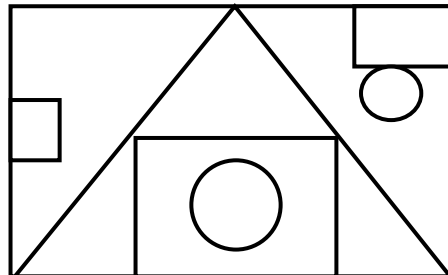
2. How many circle can you count?



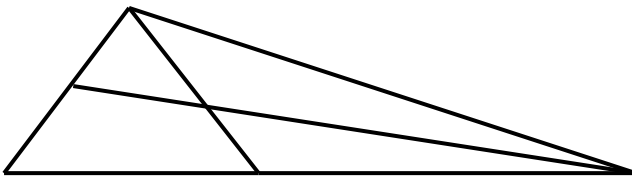
5. Study the figure below and answer the questions that follow.

a) Count the shapes

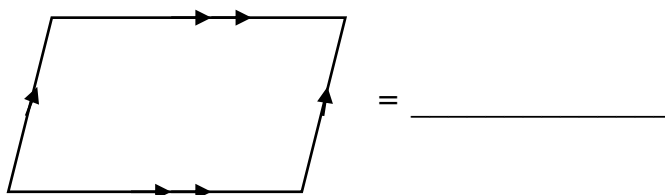
- (i) Triangles = _____
- (ii) Squares = _____
- (iii) Circles = _____
- (iv) Rectangles = _____



b) Shade the part which is not a triangle in the figure below.

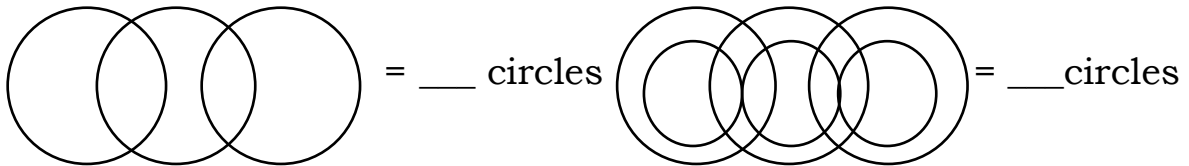
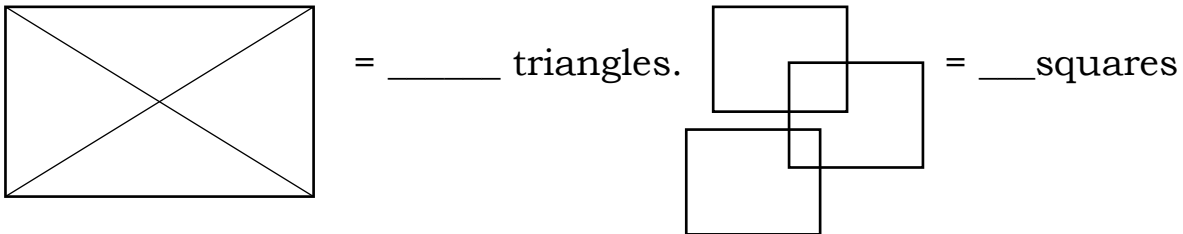
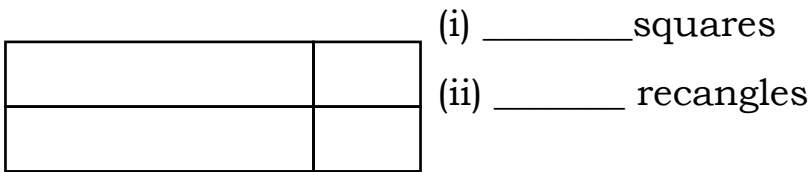


c) How many sides has the shape below?



More about counting shapes

Count the number of rectangles, triangles, circles and squares.

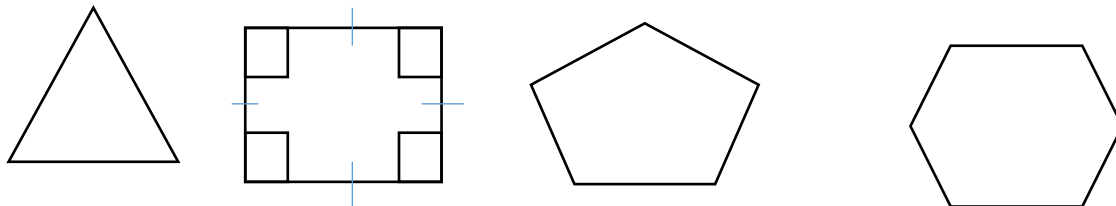


Polygons

Definition

A polygon is a closed figure with straight edges.

Examples of polygons



A 3 sided polygon is called a triangle.

A 4 sided polygon is called a quadrilateral.

A 5 sided polygon is called a pentagon.

A 6 sided polygon is called a hexagon.

Activity

1. Draw and name any 4 quadrilaterals.

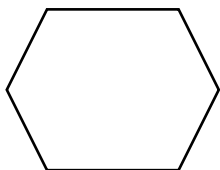
(i)

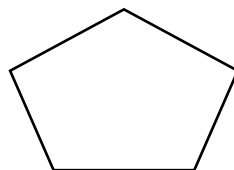
(ii)

(iii)

(iv)

2. Name the shaped below.





Topical questions

1. Draw the following geometric shapes.

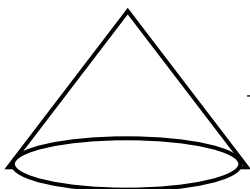
a) Kite

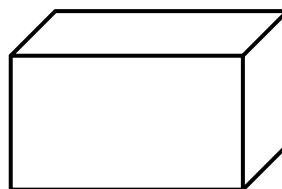
b) square

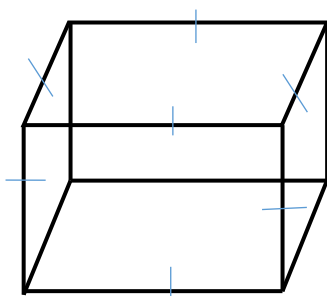
c) rectangle

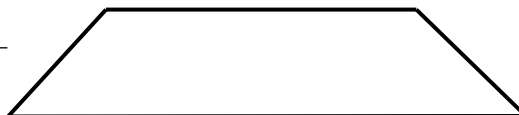
d) cylinder

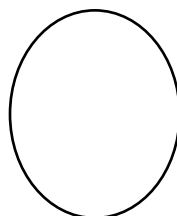
2. Name these shapes.



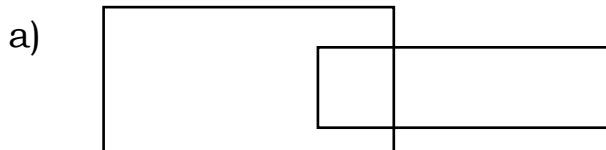






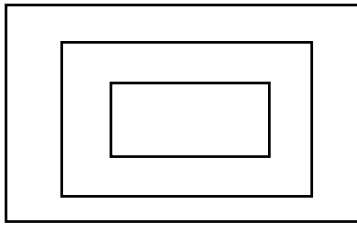


3. How many shapes can you see?



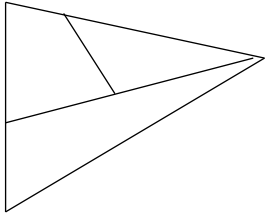
_____ rectangles

b)



_____ rectangles

c)



_____ triangles

4. (a) What is a polygon?

b) Which type of polygon is your classroom?

5. How many sides has the following polygons?

a) Pentagon _____

b) Quadrilateral _____

c) Triangle _____

d) Hexagon _____