P.5 MATHEMATICS LESSON NOTES TERM III

Topic : Money

Subtopic : Simple rate

Competences

Subject : The learner;

- Solves practical problems related to buying and selling

Language : Reads, pronounces, spells and writes the words;

- Current, rate, cent, shillings, correct

Methods : Role playing, guided discovery

Content : A book cost sh.500. What is the cost of 3 similar books

1 book = sh. 500

3 books = sh. 500 x 3

3 books cost = sh. 1500

The cost of 5 books is 2,000/=. Find the cost of one book?

5 books = sh. 3,000/=

1 book = sh. $\frac{\cancel{2000}^{400}}{\cancel{5}_{1}}$

5 bks = sh. 2,000/=

1bk = sh. $\frac{2000}{5}$

= Sh. 400

Therefore, one book costs sh. 400.

Activity

1. Sarah bought 4 trays of eggs at sh. 80,000, what is the cost of one tray?
2. Amos bought 5kg of meat at sh. 7,000 per kilo. How much did he pay for 5kg?
3. 2 books cost sh. 24,000. What can 1 pay if one needs only a book?
4. Find the cost 12 coloured pencil if each pencil costs sh. 200.
5. 4 sweets cost sh. 2,000. What is the cost of the sweet?
6. 1 school bag costs sh. 35,000. What will be the cost of 1 orange?
7. A heap of 20 orange cost 1,000/=. Find the cost of 1 orange
8. 10 mangoes costs 5,000/=. What is the cost of 1 mangoes?

9. 10 mangoes cost 5,000/=. What is the cost of 1 mangoes?
10. 1 kg of sugar costs sh. 3200. Find the cost of 6kg.
11. A dozen of dresses costs sh. 144,000. What is the cost of one dress?

Topic : Money

Subtopic : More about simple rate

Competences

Subject : The learner;

- Interprets the given questions correctly, solves practical questions related to buying and selling

Language : Reads, spells, pronounces the words correctly

- Cost, costs, equivalent

Methods : Guided discovery, question and answer

Content : The cost of 6 cups is sh. 1200. Find the cost of 10 similar cups

6cups = **sh**. 1200

1 cup = **sh**. $\frac{1200}{6}$

10 cups = **sh**. $\frac{\cancel{1200}^{200}\, x10}{\cancel{6}_{1}}$

= **sh**. 200 x 10

= **sh**. 2000

3 pencils cost sh. 1500. How many pencils will Abel buy with sh. 4500

Sh. 1500 = 3 pencils

1 sh = sh. $\frac{3}{\cancel{1500}}$ x sh. $\cancel{4500}^{3}$

= (3 x 3) pencils

= **9 pencils**

3 pencils = sh. 1500

1 pencil = sh. $\frac{1000^{500}}{\cancel{3}_{1}}$

= sh. 500

Therefore = sh. $\frac{4500}{500}$

= $\frac{\cancel{45}^{9}}{\cancel{5}}$

= **9 pencils**

Activity

1. The cost of 2 boxes is sh. 1000. What is the cost of 10 boxes?
2. 5 Mathematical sets cost sh. 5,000. What is the cost of 4 such sets?
3. 7 bars of soap cost sh. 49,000. What is the cost of 9 similar bars of soap?
4. 8 show tickets cost sh. 8000. Find how much will 12 such tickets buy?
5. A boy bought 12 pencils at sh. 2400. How was he to pay for 3 similar pencils?
6. 4 boxes of chalk cost sh. 10,000. What is the cost of 11 similar boxes of chalk?
7. 8 dresses cost sh. 64000. Find the cost of 10 similar dresses.
8. 3 pencils cost sh. 450. What is the cost of 10 pencils?
9. Sempa went to buy 7kg of sugar. How much will he pay if 6kg costs sh. 72,000?

Topic : Money

Subtopic : Shopping list

Competences

Subject : The learner;

- Interprets the question given correctly
- Works out the amount for each item
- Finds the total expenditure correctly

Language : Reads, spells, pronounces and uses the;

- Changes, expense, each, per amount in the sentence correctly

Methods : Guided discovery, question and answer

Content : Working out the shopping lists

Examples

A man had sh. 50,000, he bought 2kg of sugar at sh. 1200 per kilo, 3 bars of soap at 4,000 per bar. How much change did he have after buying?

Sugar	**Sugar**	**Total**	**Change**
Sh. 1200	Sh. 4000	Sh. 12000	Sh. 50000
x 2	x 3	+ 2400	- Sh. 14400
sh. 2400	sh. 124000	sh. 14400	sh. 35,600

A man had a change of sh. 35,600

Activity

1. A mother had sh. 5000 and bought the following items;
   12 exercise books at sh. 100 each, a geometry set at sh. 1500 and 2 pencil at sh. 200 each.
2. Amos bought the following items from the market.
   5kg of meat at sh. 2200 per kg, 500g of curry powder at sh. 900 per kilogram, 2 bars of soap all for sh. 1400. If Amos had sh. 20,000. Calculate her change.
3. Nankya had sh. 3500. She went to the shop and 2 dolls at sh. 700 per doll and 12 coloured pencils at sh. 1200 each. What change did she get?
4. Ankunda had sh. 500. He bought 4 pancakes at sh. 50 each and 2 samosas at sh. 100 each. Calculate Ankunda's change after buying.
5. Otim had sh. 20,000 and bought 4 rabbits at sh. 2,500 each and 2 piglets at sh. 4250 each . How much money was left?
6. A trader bought the following items, 20 pineapples at sh. 400 each, 2 tins of tomatoes at sh. 600 each. 1 sack of oranges at sh. 12000.
   a) How much money did she spend?
   b) If she had sh. 35,000 calculate he change after buying.

Topic : Money

Subtopic : Shopping bill / table

Competences

Subject : The learner;

- Interprets the question correctly
- Draws the bill table correctly
- Completes by filling the table correctly

Language : Reads, spells, pronounces and write the words like quantity , unit, cost, item correctly

Methods : Guided discovery, explanation and question and answer

Content :

A mother gave the shopping list below to her child. Study it and complete it.

Item	Quantity	Unit cost	Total
Blue band	½	Sh. 4,600	Sh. 2,300
Bread	3 loaves	Sh. 800	Sh. 2,400
Tea leaves	¼ kg	Sh. 6,000	Sh. 1,500
Sugar	4kg	Sh. 1,200	Sh. 4,800

Calculation

Total	**Unit cost**	**Quantity**
½ x sh ~~4600~~2300 Sh. 2300	$\frac{total}{quant}$ $\frac{2400}{3}$ = 800	$\frac{total}{unit\ cost}$ $\frac{\cancel{4800}^{4}}{\cancel{1200}_{1}}$ Sh. 4

Activity

Open page 24 of MK pupil's book 5

Open page 146 of the new MK 5

Topic : Money

Subtopic : Profit

Competences

Subject : The learner;

- Describes how profit is made
- Applies and uses the formula for profit

Language : The learner;

- Reads, spells, pronounces the words, profit, gain, increase, more correctly

Methods : Guided discovery, question and answer, Explanation

Content :

Profit is realized when we sell an item at a higher price than cost price.

Profit = selling price – cost price

P = SP - C.P

Example

Abudul bought a shirt at sh. 3,000 and later sold it at sh. 3200. What was the profit he got?

S.P = Sh. 3200

C.P = Sh. 3000

Profit = S.P - B.P

= Sh. 3200 – Sh. 3000

= Sh. 200

The marked price of a sofa set is sh. 450,000. If it is sold at sh. 550,000. How much was the profit?

Profit = S.P – B.P

= Sh. 550,000 – sh. 450,000

Sh. 550,000

- sh. 450,000

Sh. 100,000

Profit = Sh. 100,000.

Activity

1. The cost of a pair of shoes is sh. 12,500. A shopkeeper sold at sh. 150,000. Calculate the profit made.

2. A tailor made a dress at a cost of sh. 35,000 and sold it at sh. 40,000. Calculate the profit gained.

3. A man bought a coat at sh. 81,000 and later sold it at sh. 90,000. What was her profit?

4. Agaba bought a pen at sh. 1850 and sold it at sh. 3400. What was her profit?

5. A goat is sold at 15 0,000. What was the profit if it was bought at sh. 120,000?

6. A shopkeeper sold a bag of rice for sh. 220,000 which she had bought at sh. 190,000. What is her profit?

7. What profit was made on a roll of fabric sold at sh. 375,500 but bought at sh. 216,800?

8. A shirt was bought at sh,. 13,200 and sold at sh. 18,650. Find the profit obtained by6 the seller.

9. The marked price of a radio is sh. 20,000. If it is sold at sh. 250,000, find the profit on it.

10. A dozen of cups was bought at sh. 135,000 and later sold at sh. 152,000. What was the profit made.

Topic : Money

Subtopic : Selling, buying, profit

Competences

Subject : The learner;

- Interprets the questions correctly
- States or applies and used the formular correctly.

Language : The learner;

- Reads, pronounces, spells the key correctly; cost price, profit, buying price, gain, new price, old price

Content :

Finding the buying / cost price or selling price when proft is given

Profit = S.P – C.P

S.P = P + C.P

C.P / B.P = Sp – profit

Example

Annet bought a tin of oranges at sh. 14,000. She later sold it at a profit of sh. 4,000. At what price did she sell the oranges.

S.P = C.P + P

= Sh. 14000 + Sh . 4000

= sh. 14000

Sh. 4000

Sh. 18000

She sold a tine at sh. 18000

Activity

1. Kassim sold a plate for sh. 1400. He made a profit of sh. 300. How much did he buy it?

2. A radio was bought at sh. 28,000. After selling a profit of sh. 4,000 was made on it. Calculate the selling price of the radio.

3. Nabisere bought a radio at sh. 48,000 and sold it at a profit of 10,000. How much did she sell the radio?

4. Mr. Katumba bought a cow at sh. 190,000. After selling it a profit of sh. 35000 . What is the selling price of the cow?

5. Bantariza sold 3 cows and made a profit f 135,000. Find his buying/ cost price if he sold each cow at sh. 230,000.

6. A school sells uniform at sh. 16000 each and makes a profit of sh. 4500 on each uniform. What is the cost price of each uniform?

7. A profit of sh. 4000 was realized after selling an article of sh. 38,000. Find the amount used to buy the article

8. John bought a telephone at sh. 49000 and later sold it to Javan at a profit of sh. 1,000. How much did Jovan psay for the telephone?

9. A book costs sh. 700. At what price must be sold in order to get a profit of sh. 150?

10. Derrick sold each pen at a profit of sh. 50. How much did he buy each pen if he was selling a pen at 1250?

Topic : Money

Subtopic : Loss

Competences

Subject : The learner;

- Describes how a loss is made in the business.
- Interprets question s correctly
- Applies and uses the formular correctly

Language : The learner;

- Reads, spells, pronounces and writes the words correctly such as – loss, decrease, depreciates, reduces, discount
- Defines loss using simple language
- Role plays how a loss is felt in a business

Content :

Loss: Is when the selling price of an item is less than its buying or cost price

Thus: Loss = B.P_ S.P

Examples

Jagwe bbought a goat at sh. 120,000 and sold it to Deo at sh. 100,000. What loss did he make.

C.P = S. 120,000

S.P = Sh. 100,000

Loss = C.P – B.P / C.P

Sh. 120,000

Sh. 100,000

Sh. 20,000

He made a loss of sh. 20,000

Activity

1. The cost price of a radio is sh. 100,000, If it is sold at sh. 80,000, find the loss made.

2. Martha bought an umbrella at sh. 12000 and sold it sh. 9000. What was the loss?

3. A pair of shoes cost sh. 25,000. It was later sold at sh. 16,500. What was the loss?

4. Calculate the loss made on a crate of soda which was bough at sh. 72,000 and sold at sh. 61,500.

5. Atim bought a mobile phone handset at sh. 350,000. She later sold it at sh. 260,450. What loss did she incur?

6. A trader bought soap worth sh. 760,800. He later sold it at sh. 675,500. What loss was made?

7. Abudul's casr depreciated from Ug. Shs. 5,000,000 to Ug.sh. 4500000. For how much did it depreciate?

8. The price of a kilo – gram of sugar was reduced from sh. 3200 to sh. 2400. By how much did it reduce?

9. After buying a tray of sh. 82000, the price of a tray dropped to sh. 7800. By how much did it drop?

10. Amin's salary was reduced from Ug. Shs. 180,000 to Ug. Sh. 165,000. Find the reduction.

Topic : Money

Subtopic : Loss

Competences

Subject : The learner;

- Interprets the questions correctly
- States and applies the formula correctly

Language : The learner;

- Reads, spells and pronounces the words in the sentence correctly

Methods : Guided discovery, question and answer technique

Content :

Finding the cost price or selling price when profit is given

Loss = C.P – S.P

Cost price= Loss + S.P

Selling price= Cost price – Loss

Examples

Kizito bought a ball at sh. 15000. He sold it and made a loss of sh. 3000. What was the selling price of the ball?

Selling price = C.P – Loss

= Sh. 15000 – Sh. 3000

= Sh. 15000

- Sh. 3000

Sh. 12000

He sold the ball at sh. 12, 000

Activity

1. A bunch of motooke was bought at sh. 9000. It was sold at a loss of sh. 1000. What was the selling price?

2. A sheep was bought at sh. 25000. It was sold at a loss of sh. 25,000. It was sold at a loss of sh. 9,000. What is the selling price?

3. A cupboard was bought at sh. 70,000 and later sold at a loss of sh. 15000. What was the selling price of the cupboard?

4. Adeke bought 5 sacks of maize flour at sh. 175,000. She sold them making a profit of sh. 55,650. Find the selling price.

5. After selling a cow at sh. 350,000, a farmer made a loss of sh. 1000,000. Find how much did the farmer buy the cow.

6. Ayiko sold 4 goats at sh. 600,000 and made a loss of 65,000. How much did he buy the goats?

7. Mary sold a pair of shoes at sh. 26000 and made a loss of sh. 5,000. How much did she pay for the shoes?

8. A trader sold a box of soap at Ug. Sh. 17500 making a loss of sh. 1800. What is the buying price of the soap.

9. A piece of land was sold at sh. 10,500,000 at a loss of sh. 500,000. Find the buyin g price of the land.

Topic : Money

Subtopic : Calculating the cost

Competences

Subject : The learner;

- Interprets and reads the words correctly

Language : The learner;

- Interprets the questions correctly
- States the steps on how to find the total cost.
- Finds the total cost correctly

Methods : Guided discovery, Question and answer

Content :

Finding the total cost

Examples

John went to the market and bought a box of soap at sh. 240,000. He used sh. 50,000 for transport and gave sh. 2000 to a porter who carried the box. Find how much he spent on soap.

Solution

Buying price = sh. 240,000

Transport cost = sh. 50,000

Labour cost = sh. 2,000

Total = sh. 292,000

He spent sh. 292,000 on soap

Exercise

1. Agnes bought a 50kg sack of sugar at sh. 117,500. She paid sh. 2,000 to the man who took it to the bus stage at sh. 2500 for transport. If she wants to get a profit of sh. 12000, how much should she sell the sack of sugar?

2. Angella bought 2 dozens of shirts at sh. 540,000. She hired a man to carry to the tax park at sh. 1500 and used sh. 24000 for transport. If Angella sold the shirts and at a profit of sh. 94500, at what price did she sell each shirt?

3. Teo bought good worth sh. 860,000. She spent sh. 3,500 on airtime when ordering for them sh. 13,800 to the porter who loaded and sh. 75000 for transport. Calculate the total cost of the goods.

4. Asiimwe bought a cow at sh. 670,000, used sh. 110,000 to transport it to the farm. She paid sh. 35,000 for the permit and sh. 5500 on the ropes. Find the total cost of the coco.

Topic : Money

Subtopic : Pricing and fare

Competences

Subject : The learner;

- Interprets the question correctly
- Summarizes and finds amount asked correctly

Language : The learner;

- Reads, pronounces and writes the words correctly
- Interprets the meaning of the words ; fare, couple, to and from correctly

Methods : Guided discovery, explanation, open discussion

Content :

Pricing

Examples

The fare from Kampala to Mukono is sh. 2400. Find how much will Mugisha pay and his wife.

Mugisha = sh. 2400

Wife = Sh. 2400

= Sh. 4800

A man, a wife and their two children travelled to the village. If the fare for each adult is sh. 2500 and sh. 1000 per child, how much did the family pay to the conductor?

Amount from the adult = sh. 2500 x 2

= sh. 5000

Amount from the children = sh. 1000 x 2

=sh 2000

Total among paid = sh. 5000

+ sh. 2000

Sh. 7000

Activity

1. Okwi travelled from Sudan by bus and back. How much did he pay if he paid sh. 9000 for each journey?

2. John went to two and bought a box of books containing 144 books at sh. 92000. He used sh. 3500 for transport and paid sh. 2000 to the porters who helped him. If he wants to get a profit of 3300/= after selling, how much must he sell each book?

3. A father travelled with his family; wife and 3 sons to the village. If each adult is charged sh. 4000 and sh. 2000, how much did the father pay to the conductor?

Topic : Length

Subtopic : Measuring length

Competences

Subject : The learner;

- Handles the tools correctly
- Measures the length of different objects well
- Records and analyses the information well

Language : The learner;

- Reads, spells, pronounces and uses the words correctly; length, width, centimeters, height, ruler

Content :

Length : It is the distance between two points

Length / distance is measured in centimeters, metres, mm, km, etc.

Activity

Measure using the length of the following;

- Table, desks, school gate. books, chalkboard,

Items to use

- ruler, string. Tape measure, rope

Record in the table below

Table	
Chalkboard	
Book	
Desk	

Topic : Length

Subtopic : Conversion of metric units

Competences

Subject : The learner;

- Converts to different units correctly

Language : The learner;

- Reads, spells and pronounces the words correctly; millimeter, centimeters, convert e.t.c.

Methods : Explanation, Guided discovery, question and answer

Content :

Expressing centimeters to millimeters and vice versa

Km Hm Dm M dm m mm

1cm = 10mm

10mm = 1cm

1mm = $\frac{1}{10}$cm

Cm _____mm (we multiply by 100)

Mm _____cm (We divide by 100cm)

Examples

1. Change 2cm to mm

   1cm = 100mm

   2cm = (2x100)mm

   = **200mm**

2. Express 600mm to cm

   1mm = $\frac{1}{100}$ cm

   600mm = $(\frac{600}{100})$ cm

   = **6cm**

Activity

1. Change the following to mm
   a) 4cm
   b) 5cm
   c) 0.5cm
   d) 0.2cm
   e) 40cm

2. Express the following mm to cm
   a) 2000mm
   b) 4000mm
   c) 250mm
   d) 25mm
   e) 300mm

Topic : Length

Subtopic : Conversion of metric units

Competences

Subject : The learner;

- Converts to different units correctly

Language : The learner;

- Reads, spells, pronounces and writes the words correctly ; metres, centimeters, express, millimeter

Methods : Explanation, group work, guided discovery.

Content :

Expressing metres to centimeters to millimeters and vice versa.
Km Hm Dm M dm cm mm

1 0 0 0

1 metre = 100cm

1 metre = 1000mm

Reverse

1cm = $\frac{1}{100}$ m

1mm = $\frac{1}{1000}$ m

Examples

1. Convert 2 metres to centimeters
   1m = 100cm
   2m = (2x100)cm
   = **<u>200cm</u>**

2. Express 3 metres to millimeters
   1m = 1000mm
   3m = (3x1000)mm
   = **<u>3,000mm</u>**

3. Change 2400cm to metres
   1cm = $\frac{1}{100}$ m
   2400cm = ($\frac{1}{100}$ x 24~~00~~) metres
   = **<u>24metres</u>**
4. Convert 2400mm to metres
   1m = 1000mm
   1mm = 1m
   1mm = $\frac{1}{100}$ m
   2400mm = ($\frac{1}{1000}$ x 24~~00~~)m
   = $\frac{24}{10}$ m
   = **<u>2.4m</u>**

Activity

1. Express the following to cm
   a) 20m
   b) 2.4m
   c) 0.2m
   d) 1 ½ m

2. Change the following to millimeters (mm)
   a) 4m
   b) 16m
   c) 4.6m
   d) 2 ½ m
3. Express the following to metres
   a) 2000cm
   b) 40000mm
   c) 280cm
   d) 490mm
4. Agiza ran a distance of 100,000 millimetres. Change this distance to;
   a) Centimeters
   b) Metres

Topic : Length

Subtopic : Conversion of units

Competences

Subject : The learner;

- Converts to different units correctly

Language : The learner;

- Reads, spells and pronounces the words correctly; millimeters, centimeters, kilometers
- Construct sentences using the above words correctly

Methods : Explanation, group work, guided discovery.

Content :

Expressing kilometers to metres and vice versa

Km	Hm	Dm	Mm	dm	cm	mm
1	0	0	0			

1km = 1000metres

1 m = $\frac{1}{1000}$ km

Example

1. Convert 3km to metres

   1km = 1000metres

   3km = (3 x 1000)m

   = <u>3,000m</u>

2. Express 25000 metres to kilometers

   1000m = 1km

   1m = $\frac{1}{1000}$ km

   25000m = ($\frac{1}{100}$ x 25000)km

   = 25km

Activity

1. Change the following kilometers to metres
   a) 5km
   b) 7km
   c) 9km
   d) 93km
   e) 36km
   f) $\frac{2}{5}$ km

2. Change the following metres to kilometers
   a) 5000m
   b) 16500m
   c) 3125m
   d) 648m
   e) 440m
   f) 25000m

Topic : Length

Subtopic : Perimeter of a square

<u>Competences</u>

Subject : The learner;

- Describes how to find the perimeter
- Applies and uses the formula of getting perimeter correctly

Language : The learner;

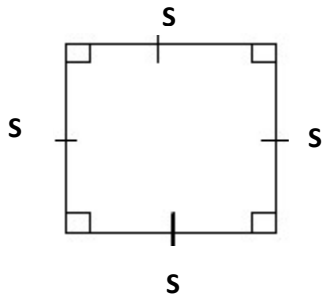
- Reads, spells, pronounces and writes the words; perimeter, distance, around, metres, centimeters correctly

Methods : Guided discovery, Demonstration, question and answer

Content : Perimeter

Perimeter is the total distance around any object / figure.

Perimeter of a square



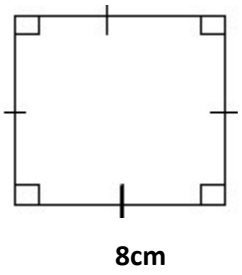
Perimeter = Add all sides

= S + S + S + S

= 4S

Examples

Find the perimeter of the square below



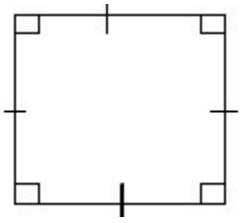
Perimeter = 4S

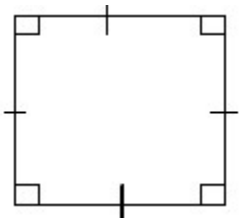
= 4 x 8cm

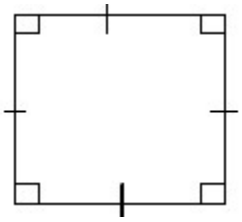
= 32cm

Activity

Workout the perimeter of the squares below

1. 

2. 

3. 

4. A square garden has its side; 4m. Find the distance around the garden.

5. A square compound of length 16m is to be fenced using barbed wire. Find the length of the wire needed to fence it.

6. Workout the perimeter of a square whose side are 20cm each.

Topic : Length

Subtopic : Perimeter of a rectangle

Competences

Subject : The learner;

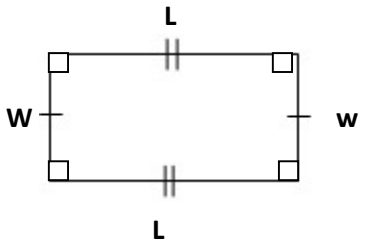
- Draws the rectangular shapes correctly
- Uses the formula for perimeter correctly

Language : The learner;

- Reads, spells and writes the words correctly
- Describes how to find the perimeter of a rectangle correctly

Methods : Explanation, Guided discovery

Content : Perimeter of a rectangle



Perimeter = L + w + L + w

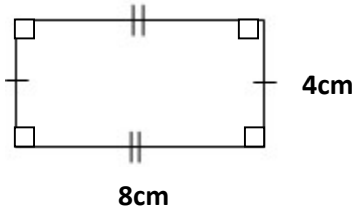
= L + L + w + w

= 2L + 2w

P = **2(l+W)**

Examples

Find the perimeter of the rectangle below



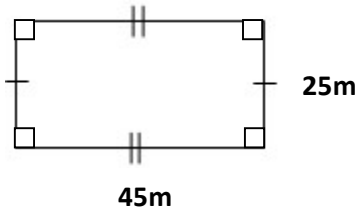
Perimeter = 2 (L+W)

= 2 x (8cm + 4cm)

= 2 x 12cm

= **24cm**

A rectangular field has a length of 45m and 25m. Find the total distance around the field.



Method 1

P = 45m + 25m + 45m + 25m

= 70m + 70

= **140m**

Method 2

P = 2 (L + W)

= 2(45 + 25)cm

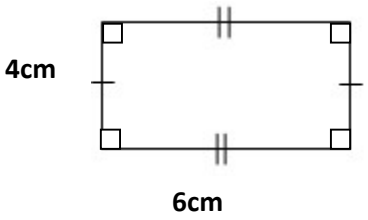
= 2 x 70cm

= **140cm**

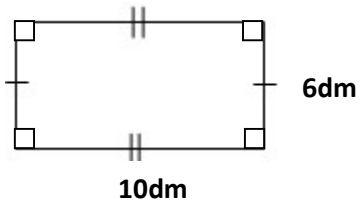
Activity

Find the perimeter of the rectangles below

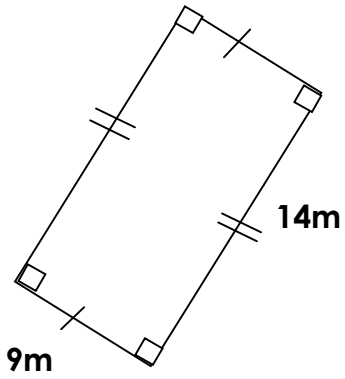
1.



2.

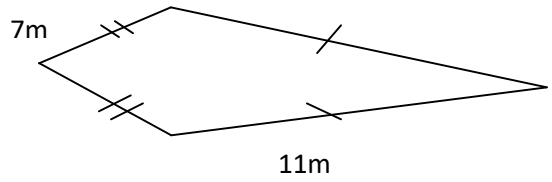


3.



4. A rectangular play ground has a length of 64m and a width of 40dm. calculate the distance around the play ground.
5. Our class room measures 800cm long and 600cm wide. Find the distance around the class room.

6. Workout the perimeter of the kite below



Topic : Length

Subtopic : Perimeter of a triangle

<u>Competences</u>

Subject : The learner;

- Identifies the given shape correctly
- Finds out the perimeter of the given figures correctly

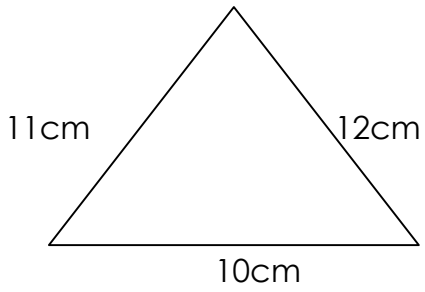
Language : The learner;

- Reads, spells the words like triangle, triangular, perimeter and uses them in sentences correctly

Methods : Guided discovery, group discussion, question and answer

Content : Perimeter of a triangle

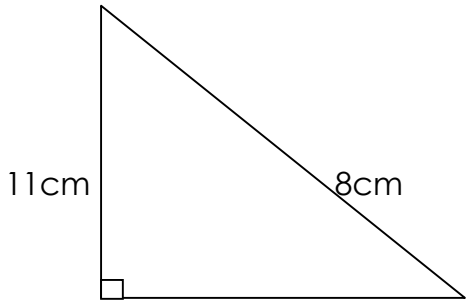
Examples



Perimeter = S + S + S

= 11cm + 10 cm + 12cm

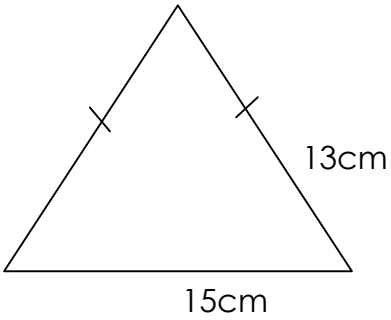
= 33cm



Perimeter = 6cm + 4cm + 8cm

= 10cm + 8cm

= 18cm



Perimeter = 15cm +12cm +13cm

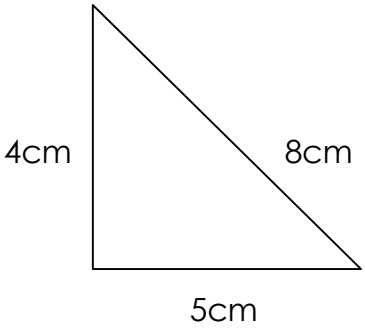
= 15cm + 26cm

= 41cm

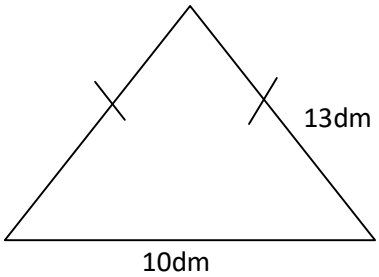
Activity

Workout the perimeter of the triangles given

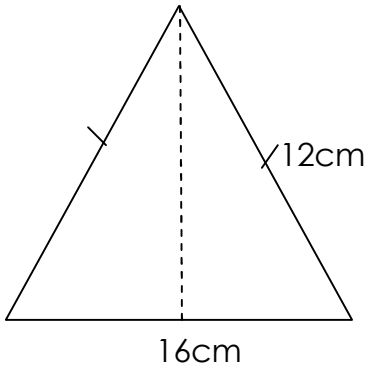
1.



2.



3.



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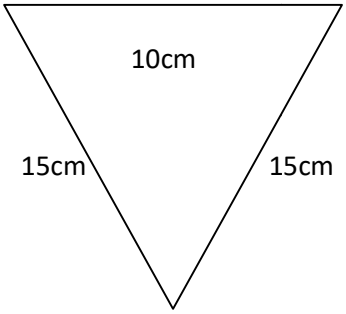

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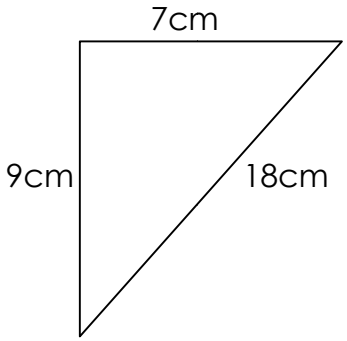
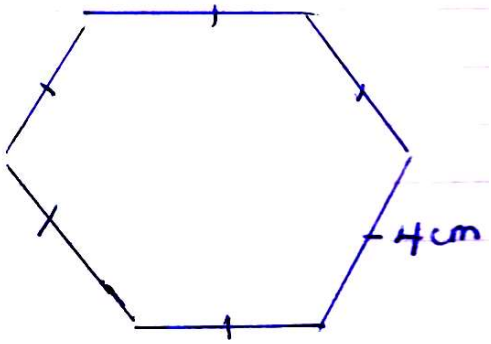
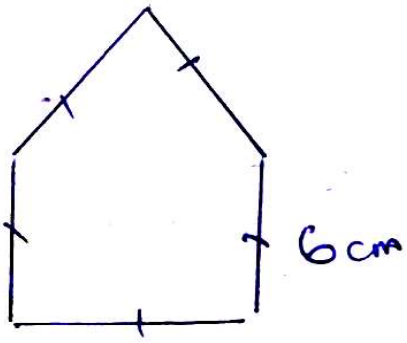


6. The sides of a triangle are 32dm, 48cm and 45cm, workout the distance around the triangle.

7. Find the perimeter of the figure below



8.



Topic : Length

Subtopic : Perimeter of combined figure

Competences

Subject : The learner;

- Counts the sides of a jointed figure correctly
- Adds the length of each side to find perimeter correctly

Language : The learner;

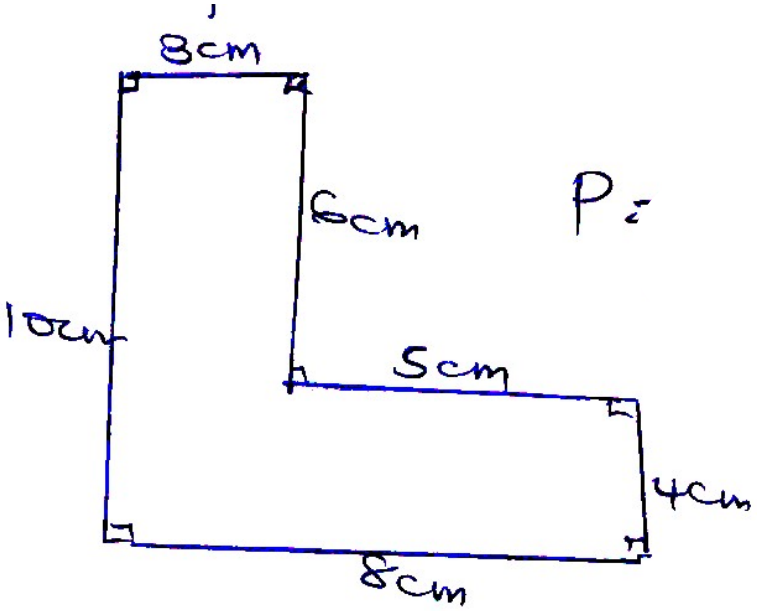
- Interprets the question correctly
- Recognizes the shape given

Methods : Explanation, Guided discovery, question and answer

Content : Perimeter of the combined figure

Examples

Workout the perimeter of the figure below



P =

P = Add all the sides

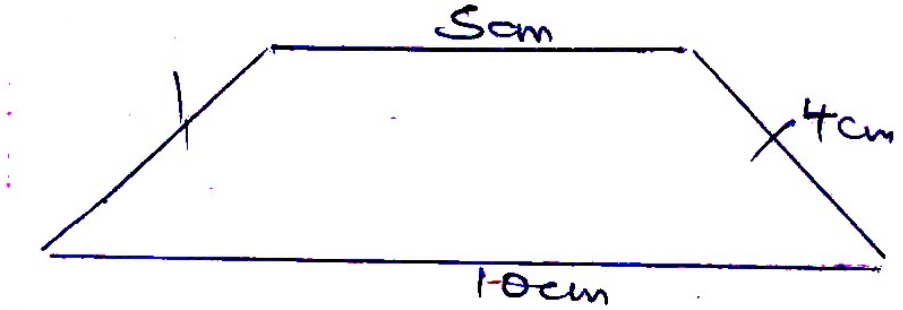
= 10cm + 3cm + 6cm + 5cm + 4cm + 8cm

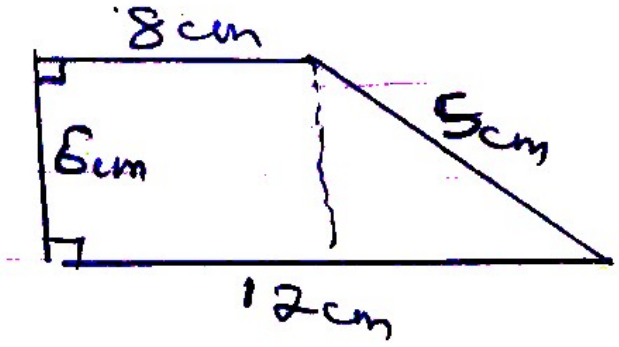
= 13cm + 15 + 8cm

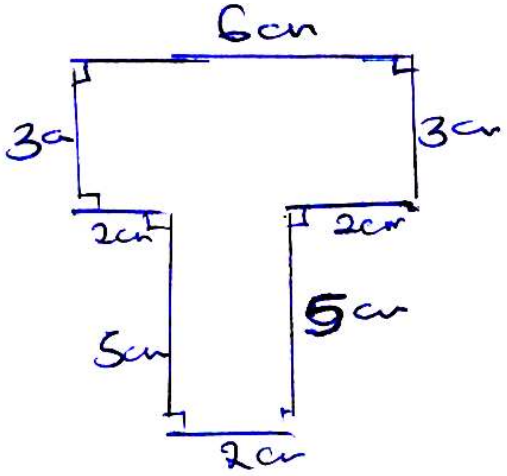
= 36cm

Activity

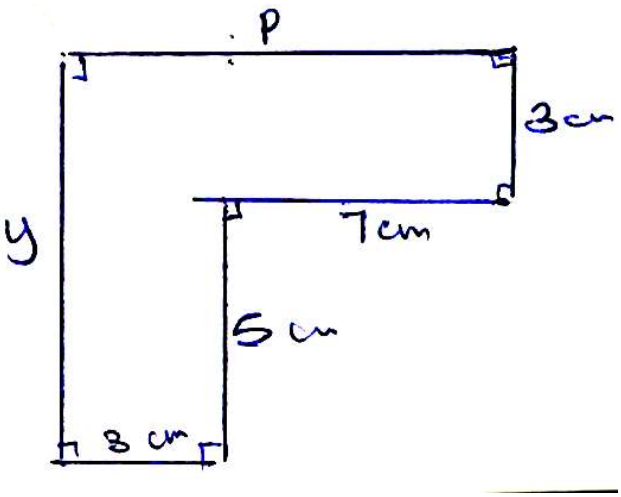
Find the perimeter of the following shapes

1. 

2. 

3. 

4.



a) Find the value of P and y

b) Workout its perimeter

Topic : Length

Subtopic : Area

Competences

Subject : The learner;

- Identifies the shape given correctly
- Applies and uses the formula or finding the square correctly
- Uses correct units of an area

Language : The learner;

- Reads, spells, pronounces and writes the words correctly; area, covered, square., rectangle,units

Methods : Guided discovery, explanation and group discussion

Content : Area of a square and rectangle

Area is the spaces covered by an object. It is measured in square units like m^2, cm^2, km^2, dm^2 e.t.c

Examples

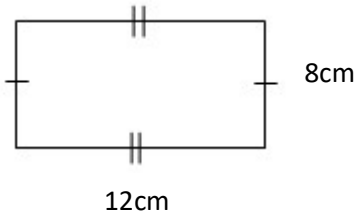
Find the area of the figure below

Area of ⬚ = L x L

= 13cm x 13cm

= 169cm^2

Workout the area of the rectangle below

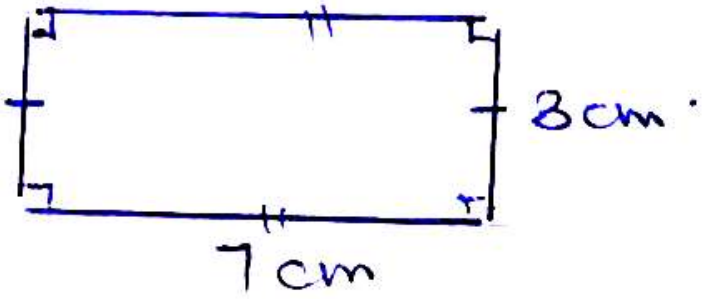


Area of a rectangle	= L x W	12cm
	= 12cm x 8cm	x8cm
	= **96cm^2**	**96cm^2**

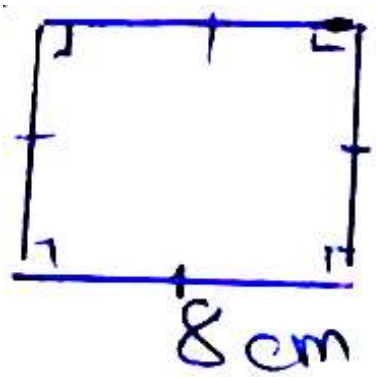
Activity

1. Workout the area of the following figures

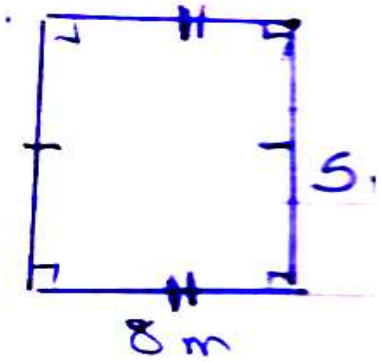
a)



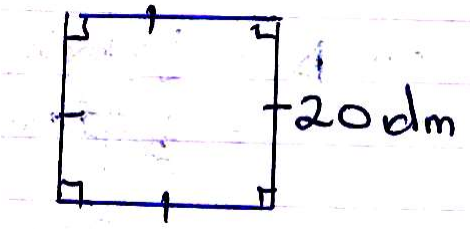
b)



c)



2. Nakku made a carpet whose length was 7cm and width 5cm. Find its area.
3. Find the area of a rectangle whose length is 9cm and width 6cm
4. A square garden has a length 50m. calculate the area of the garden.
5. One side of a square piece of land is 100m. Find its area.
6. Find the area of the grazing field whose length is 32m and 13m wide.
7. Our classroom is 8m long and 5m wide. Find the area of the classroom.
8. Workout the area of a rectangular field whose length is 15m and its width is 7m
9. Below is a square. Find its area.



10. Find the area of a square tile whose sides measure 22cm.

Topic : Length

Subtopic : Area of a triangle

Competences

Subject : The learner;

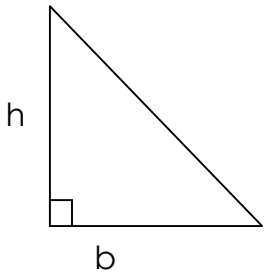
- Recognizes and draws the shapes correctly
- Applies and uses the formula correctly
- Uses correct units

Language : The learner;

- Reads, spells, pronounces and writes the words correctly; half, triangle, triangular, base, height, breadth, perpendicular, right angle

Methods : Guided discovery, explanation, question and answer

Content : Area of triangle



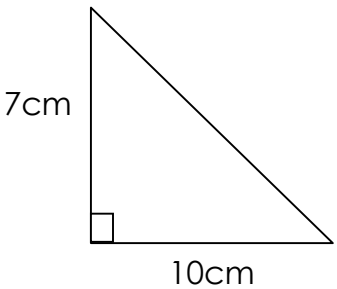
Area of a triangle = ½ x b x h

b = base

h = height

Examples

Workout the area of a triangle below



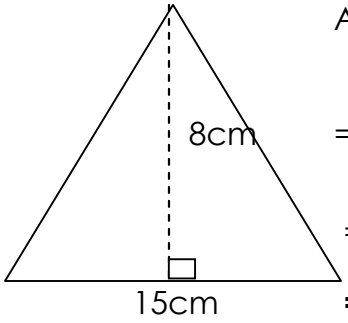
Area of D = $\frac{1}{2}$ x b x h

= $\frac{1}{\cancel{2}_{1}}$ x $\cancel{10}$ ^{5}cm x 7cm

= 5cm x 7cm

= 53cm^2

Workout the area of a triangle below



Area $= \frac{1}{2}$ x b x h

$= \frac{1}{\cancel{2}_{1}}$ x $\cancel{8}^{4}$cm x 15cm

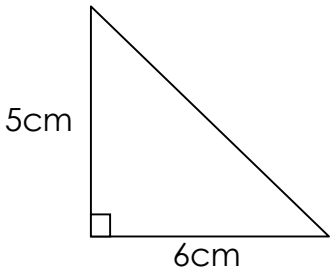
= 4cm x 15cm

= 60cm²

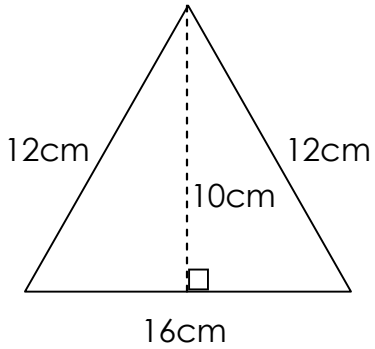
Activity

Workout the area of the following figure

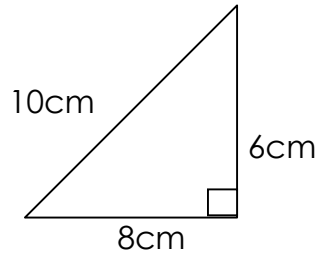
1.

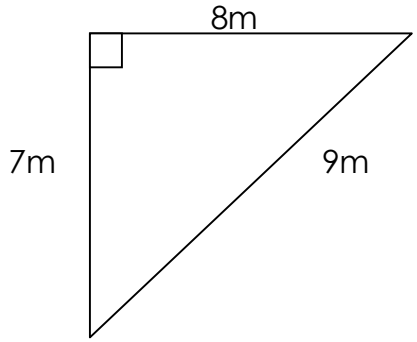


2.



3.



4. 

5. The base of a triangle is 10cm and its height is 8cm. Find its area.
6. Find the area of a triangle whose base is 10cm and height 4cm
7. The base and height of a triangular piece of land is 12m and 12m respectively. What is its area?
8. Jerom bought a triangular piece of land with a base 18m and heaight 20m. Workout the area of the land.

Topic : Length

Subtopic : Area of combined shapes

Competences

Subject : The learner;

- Draws the jointed figure correctly
- Divides the jointed figure into parts correctly
- Finds the area of each part and total correctly

Language : The learner;

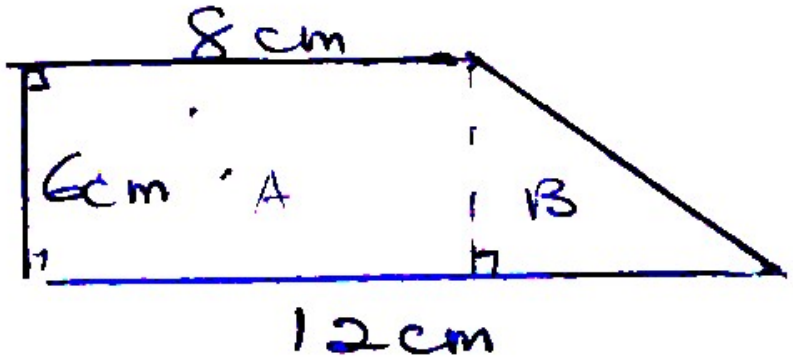
- Reads and writes the names of the figure correctly
- Recognizes the shapes well.

Methods : demonstration, Guided discovery, question and answer

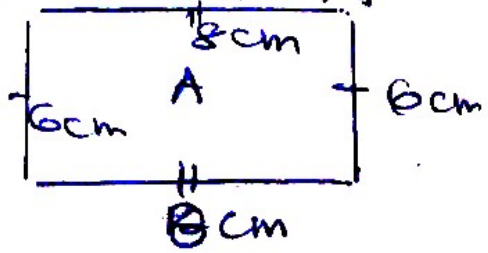
Content : Area of jointed / combined figures

Examples

Workout the area of the figure below



Area of A.



Area = L x W

= 8cm x 6cm

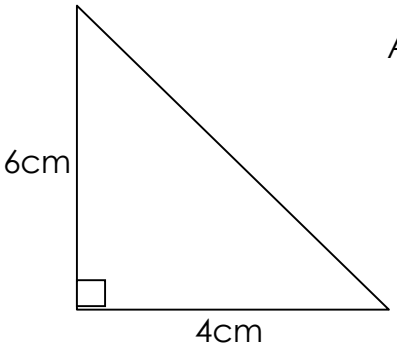
= 48cm².

Total area of A and B.

48cm² + 12cm²

= 60cm².

Area of B



Area $= \frac{1}{2}$ x b x h

$= \frac{1}{\cancel{2}_1}$ x $\cancel{4}$ ^{2}cm x 6cm

= 2cm x 6cm

= 12cm

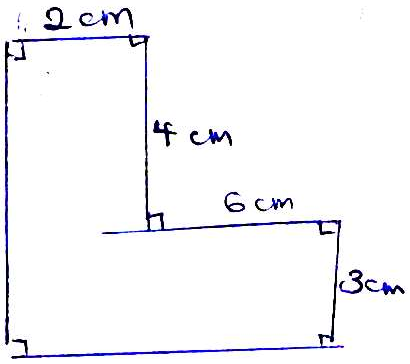
Total area of A and B

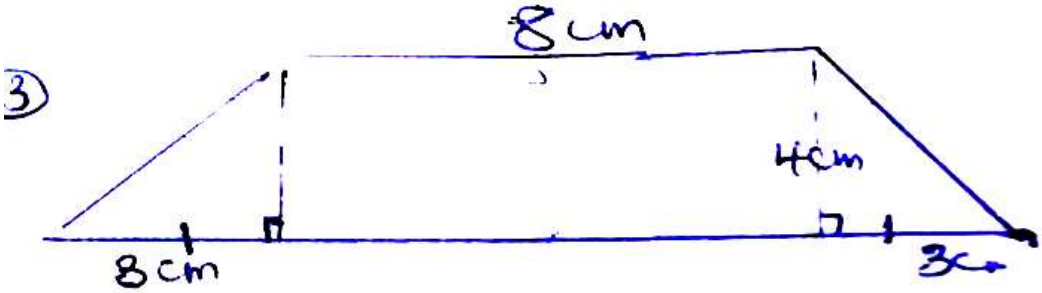
48cm^2 + 12cm^2

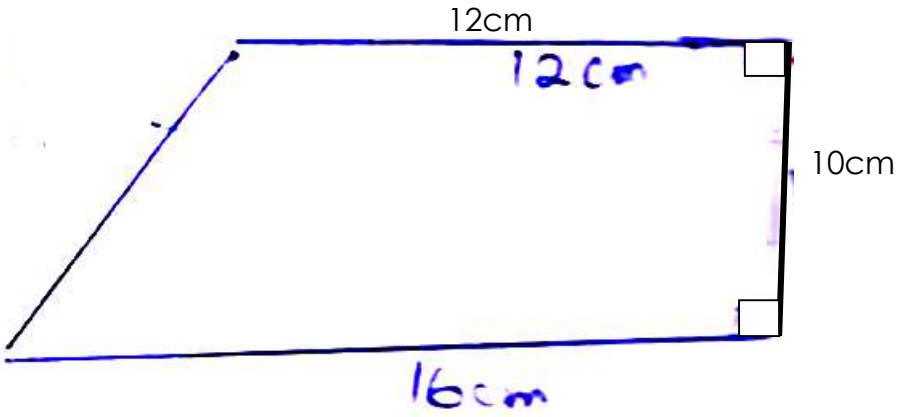
60cm^2

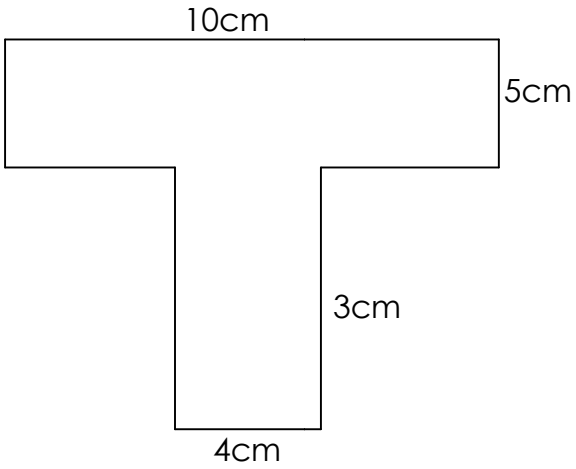
Activity

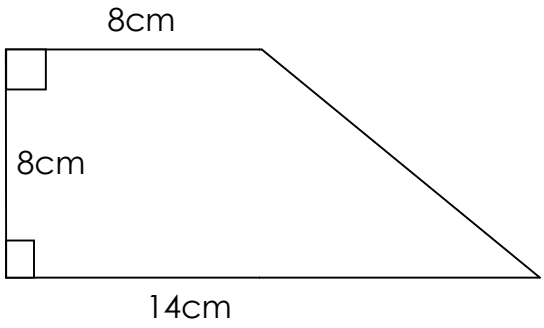
Workout the area of the following shapes











Topic : Length

Subtopic : Area of the shaded parts

Competences

Subject : The learner;

- Recognizes the shape given correctly

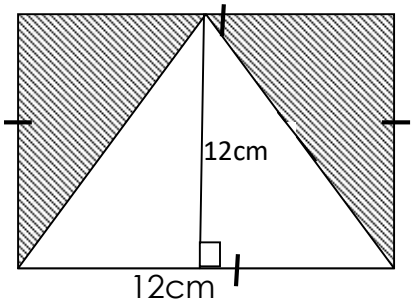
- Applies and uses a suitable formula correctly

Language : The learner;

- Reads, spells, pronounces and writes the words shaded, unshaded, difference, whole correctly

Methods : Guided discovery, explanation, question and answer

Content : Finding the area of the shaded part in combined part.



Area of the whole figure

Area = L x L

= 12cm x 12cm

= 144cm^2.

Area of a triangle

$\frac{1}{2}$ x b x h

$\frac{1}{2}$ x 12^{6}cm2 x 12cm

6cm x 12cm

72cm^2

Area of the shaded parts

Area of the whole – Area of Triangle

144cm^2 – 72cm^2

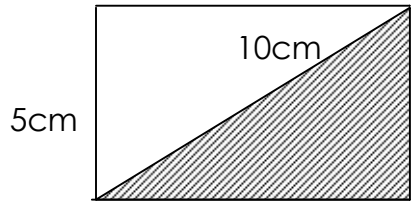
144cm^2

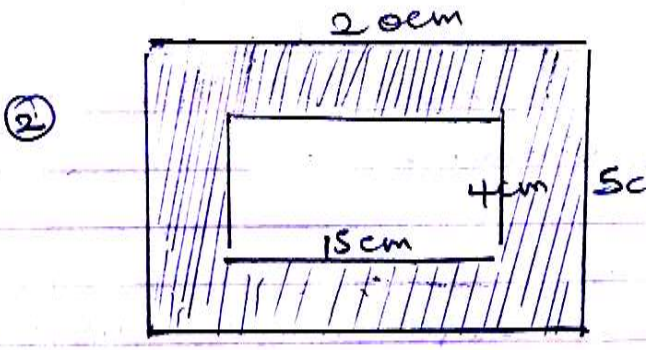
- 72cm^2

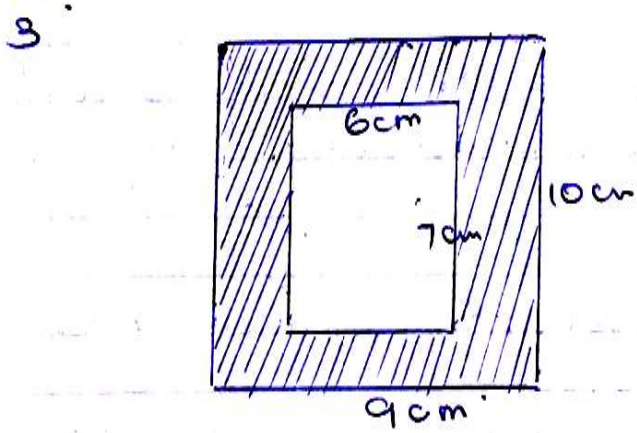
72cm^2

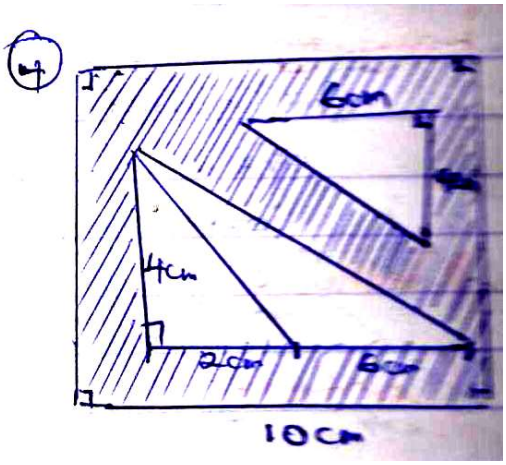
Activity

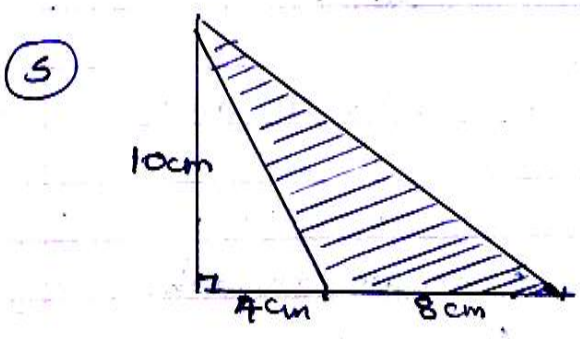
In the diagram below, find the area of the shaded parts











Topic : Mass

Subtopic : Conversion of units

Competences

Subject : The learner;

- Measures the weights of different objects
- Records the weight correctly
- Converts the units kg to grams correctly

Language : The learner;

- Reads, spells, pronounces and writes the words; kilogram, gram, beam balance well
- Uses the above words in sentences correctly

Methods : Guided discovery, question and answer , explanation

Content :

Changing kilograms to grams

Kg	**Hg**	**Dg**	**Gd**	**dg**	**cg**	**mg**
1	0	0	0			

1kg = 1000g

Examples

1. Change 3kg to grams
   1kg = 1000g
   3kg = (3 x 1000) g
   = 3000g

2. Express 2 ½ kg to grams
   1kg = 1000g
   2 1/2kg – 2 ½ kg x 1000
   $(\frac{5}{\cancel{2}} \times \cancel{1000}\ ^{500})$g
   (5 x 500) g
   = 2500g

Activity

Change the following kilograms to grams

1. 2.5kg
2. 34kg
3. 14kg
4. 100kg
5. 1000kg
6. 7.2kg
7. 5 ¼ kg
8. $\frac{3}{4}$ kg
9. Mugalula bought 4kg of meat for the family. How many grams did he buy?
10. The total weight of a man and his wife is 104kg. Express their weight in grams.

Topic : Mass

Subtopic : Conversion of units

Competences

Subject : The learner;

- Converts grams to kilograms correctly
- Applies the correct units

Language : The learner;

- Recites the nymonic of units correctly using simple language.

Methods : Explanations, guided discovery, group work

Content :

Converting grams to kilograms

1000kg = 1kg

1g = $(\frac{1}{1000})$kg

Examples

1. Express 5000g to kilograms

   1g = ($\frac{1}{1000}$ x 5000) kg

   (1 x 5) kg

   5kg

2. Change 750g to kg

   1kg = $\frac{1}{1000}$kg

   750g = ($\frac{1}{1000}$ x 50) kg

   $\frac{75}{100}$kg

   0.75kg

Activity

1. Express the following from grams to kilograms
   a) 50,000g
   b) 7,000g
   c) 2350g
   d) 7980g
   e) 4000g
2. Ogwal's bag weighs 5,900g, How heavy is it in kg?
3. Express 420g to kilograms

Topic : Capacity

Subtopic : Conversion of units

Competences

Subject : The learner;

- Measures to find the capacity of different objects correctly
- Converts litres to milliliters correctly

Language : The learner;

- Reads, spells, pronounces and uses the words; litres, capacity, milliliters, half correctly

Methods : Guided discovery, explanation, question and answer

Content :

Converting litres to milliliters

Note;

1 litre = 1000millilitres or cubic centimetres

1 litre = 1000m / cc

Examples

1. Convert 2 litres of milliliters

   1l = 1000ml

   0.5l = (0.5 x 1000)ml

   (5x100)ml

   = 500ml

Exercise

Express the following to milliliters (mls)

1. 3 litres
2. 6 litres
3. 4.5 litres
4. 12 litres
5. 2 ½ litres
6. $3\ \frac{1}{5}$ litres
7. $\frac{2}{5}$ litres
8. Joel measured 20 litres of water and powered it in a jerrycan. How many millitres did he measure?
9. Change 0.751 to ml.

Topic : Capacity

Subtopic : Conversion of units

Competences

Subject : The learner;

- Converts the volume to capacity in litres
- Uses the correct units

Language : The learner;

- Reads the sentences fluently
- Uses the words litre, capacity, millitre correctly

Methods : Guided discovery, explanation

Content :

Converting millitres to litres

1000mls = 1litre

1ml = ($\frac{1}{1000}$) litres

Note: Capacity in litre = $\frac{Volume}{1000}$

Examples

1. A box containing 25000ml of water. How many litres of water are in the box?

   1ml = $\frac{1}{1000}$l

   25000mls = ($\frac{1}{1000}$ x 25000) litres

   (1x25) litres

   25 litres

2. Change 6250 mls to litres

   Capacity = $\frac{volume}{1000}$

   $= \frac{625\emptyset}{100\emptyset}$ l

   $\frac{625}{100}$ l

   6.25litres

Exercise

Express the following to litres

1. 2000mls
2. 5000mls
3. 250mls
4. 750mls
5. 4860ml
6. 25cc
7. 150cc
8. A bottle containing 6500mls of milk. Find the capacity of the bottle in litres
9. Abdul's cup is labeled 500ml. If he takes 2 cups of water from his cup, how many litres does he drink?
10. Change 220000mls to litres

Topic : Capacity

Subtopic : Volume and capacity of cuboid / cube

Competences

Subject : The learner;

- Draws a cube and cuboid correctly
- Finds the volume of a cube and cuboid well
- Converts volume to capacity in litres

Language : The learner;

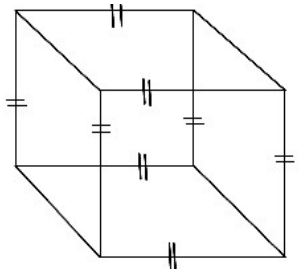
- Reads and interprets the problems involving volume and capacity correctly

Methods : Explanation, Guided discovery, Group work

Content :

Volume and capacity of a cube and cuboid

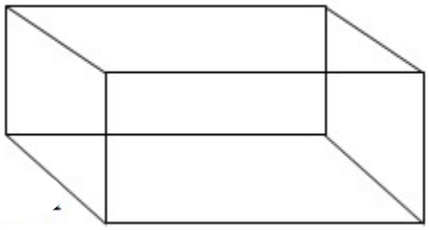
Cube



Vol. = L x L x L

= L^3

Cuboid

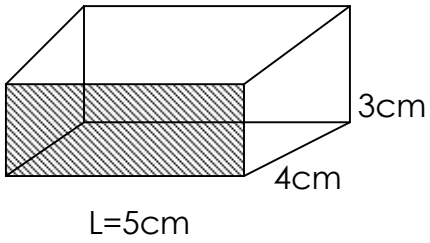


V = L x W x H

Capacity =($\frac{Volume}{1000}$) litre

Examples

Below is a cuboid



a) Find the volume of the cuboid

Volume = L x W x H

= 5cm x 4cm x 3cm

= $20cm^2$ x 3cm

= $60cm^3$

b) Find the capacity of the cuboid

Capacity = $\frac{Volume}{1000}$

$\frac{60}{1000}$ litres

$\frac{6}{100}$ litres

0.06litres

Note;

Apply area and perimeter on a cube / cuboid i.e

Find the area or perimeter of the shaded part.

A rectangular tank has length 10cm, 80cm wide and it is 30cm high

a) Find the volume of the tank
   Volume = Length x Width x Height
   = 10cm x 80cm x 30cm
   =800cm2 x 30cm
   = 24000cm^3

b) Find the capacity of the tank
   Capacity = $\frac{Volume}{1000}$

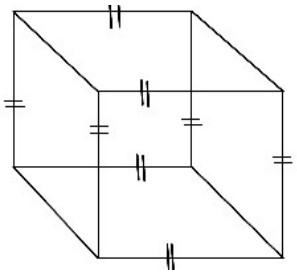
   1000cm3 = 1L

   24000cm 3 = $\frac{24000cm^3}{1000cm^3}$

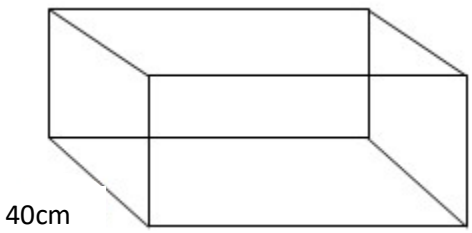
   <u>24litres</u>

   Activity

1. Workout the volume and capacity of the tank below



20cm



50cm

2. A water tank has a length of 15cm, 20cm wide and it is 40cm high
   a) Find its volume in cc.
   b) Workout the capacity of the tank in litres
3. Find the capacity of the tank whose length is 100cm, 80cm wide and 60cm high.

Topic : Integers

Subtopic : Addition of integers

Competences

Subject : The learner;

- Draws the number line correctly
- Represents integers on the
- Adds the integers

Language : The learner;

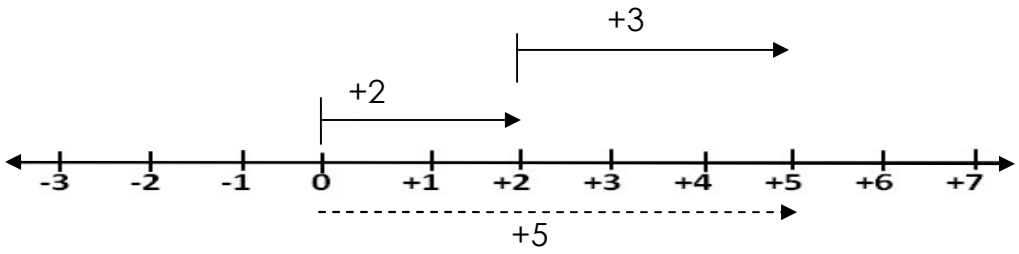
- Describes the integers on the number line correctly
- Uses the words back ward, forward correctly

Methods : Demonstration, Questions and answers

Content : Addition of integers

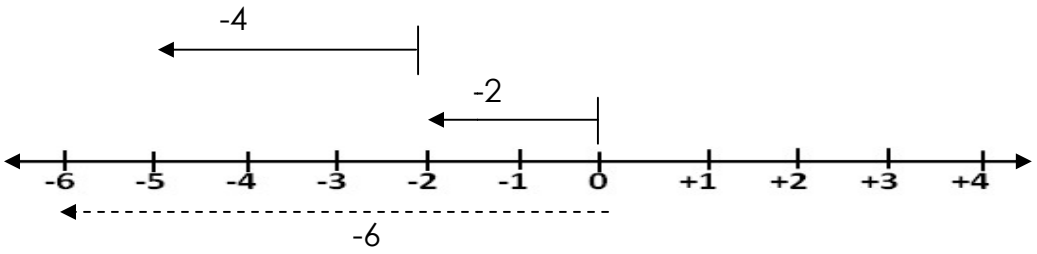
Examples

Add: $^{+}2+^{+}3$



$^{+}2 + ^{+}3 = ^{+}5$

Add: $^{-}2+^{-}3$



$^{-}2 + {}^{-}4 = {}^{-}6$

Exercise

Workout the following using a number line

1. $^{+}2+^{+}4$
2. $^{+}3+^{+}5$
3. $^{+}2+^{+}1$
4. $^{+}4+3$
5. $^{+}5+^{+}2$
6. $^{-}2+^{-}3$
7. $^{-}6+^{-}2$
8. $^{-}4+^{-}3$
9. $^{-}1+^{-}4$
10. $^{-}7+^{-}2$

Topic : Integers

Subtopic : Subtraction of integers

Competences

Subject : The learner;

- Subtract the integers on a number line correctly

Language : The learner;

- Reads and uses the words correctly; back ward, forward, below, positive, negative

Methods : Demonstration, explanation, guided discovery

Content :

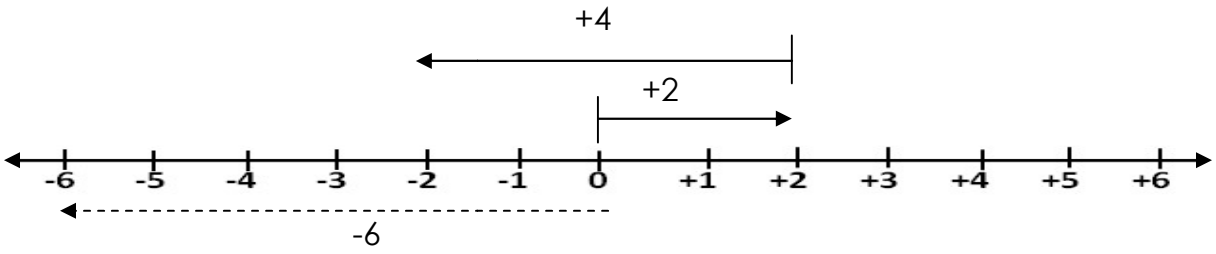
Subtracting integers

Examples

Note:

- All integers begin from the same point.
- The answer is obtained from the distance by the arrow from the second integer to the first.

$^{+}2 - {}^{+}4$



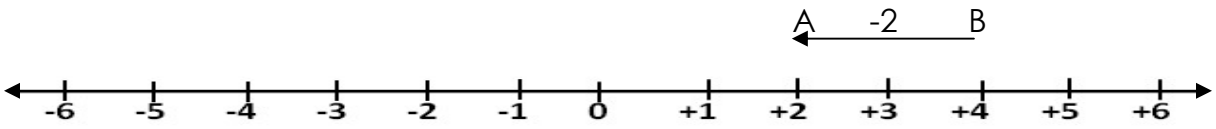
$^{+}2 - {}^{+}4 = -2$

Method II

Let us label the integers A and B.

$^{+}2 - {}^{+}4$
A B

Subtraction mean backwards. So move from $^{+}4 - {}^{+}2$ on the number line.
B A



$^{+}2 - {}^{+}4 = {}^{-}2$

Subtract the following using labeling method

a) $^{+}3 - {}^{+}5$

b) $^{+}6 - {}^{+}1$

c) $^{-}7 - {}^{+}1$

d) $^{-}5 - {}^{+}4$

e) $^{+}3 - {}^{+}4$

f) $^{-}6 - {}^{-}3$

g) $^{-}4 - {}^{+}4$

h) $^{+}7 - {}^{+}3$

i) $^{+}5 - {}^{+}6$

Topic : Integers

Subtopic : Addition and subtraction

Competences

Subject : The learner;

- Adds the integers without using a number line correctly
- Subtracts integers correctly

Language : The learner;

- Describes the integers using simple language

Methods : Guided discovery, discussion and explanation

Content :

Addition and subtraction without using a number line

Examples

1. Add: $^{+}2 - {}^{+}5$

Pos	Neg
+ +	
+	
+ +	0
+ +	
+7	

$^{+}2 - {}^{+}5 = 7$

2. Add: $^{+}2 - {}^{+}5$

Pos	Neg
+ +	-
+	-
+ +	-
+ +	-
	-
+0	-3

$^{+}2 - {}^{+}5 = {}^{-}3$

3. Add: $^{+}3 - {}^{+}6$

: $^{+}3 - 6$

Pos	Neg
+	-
+	-
+	- -
+ +	- -
	-3

$^{+}3 - {}^{+}6 = {}^{-}3$

Note;

- When the same signs (- $^{-}$) they multiply to give a positive
- Different signs in the middle multiply to give a negative.

Thus; - x - = +

+ x + = +

- x + = -

+ x - = -

Activity

Workout the following without using a number line

1. $^{+}3 - {}^{+}4$
2. $^{-}4 - {}^{-}4$
3. $^{-}6 + {}^{+}6$
4. $^{+}5 - {}^{+}4$
5. $^{+}3 - {}^{+}2$
6. $^{-}4 - {}^{+}2$
7. $^{-}6 - {}^{-}4$
8. $^{+}10 - {}^{-}6$

Topic : integers

Subtopic : Inverse

Competences

Subject : The learner;

- Finds the inverse of an integer correctly

Language : The learner;

- Reads, spells, pronounces the words; additive, inverse correctly
- Uses the words in the sentence correctly

Methods : Guided discovery, question and answer

Content :

Additive inverse

They are the opposite of the integers

Examples

Any integer added to its inverse gives the zero as a result.

Find the inverse of $^{+}2$
Let the inverse be w.

$^{+}2 + w = 0$

$2 - {}^{+}2 + w = 0 - 2$

W = $^{-}2$

Find the inverse of $^{-}15$
Let the inverse be y

$y + {}^{-}15 = -0$

$y + {}^{-}15 + 15 = 0 + 15$

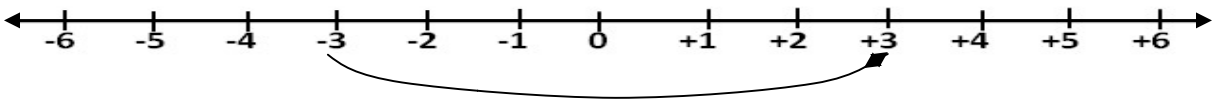
$y + 0 = 15$

y = 15

Finding the inverse on the number line

Question

What is the additive inverse of $^{-}3$?



The additive inverse of -3 is +3.

Exercise

1. Use unknowns to find the additive inverse of the following
   a) $^{-}6$
   b) $^{+}9$
   c) $^{-}20$
   d) $^{+}15$
   e) $^{+}100$
   f) $^{-}150$
   g) $^{+}300$

2. Use a number line to find the inverse of the following integers
   a) $^{-}2$
   b) $^{+}6$
   c) $^{+}4$
   d) $^{-}8$
   e) $^{-}1$
   f) $^{+}7$

Topic : Integers

Subtopic : Multiplication of integers

Competences

Subject : The learner;

- Recogonises the number of groups correctly
- Multiplies correctly with or without a numberline

Language : The learner;

- Reads the words ; groups, laps, twice, thrice correctly
- Recognizes the direction of movement correctly

Methods : Explanation, guided discovery

Content :

Multiplication of integers

Examples

1. Multiply : 2 x $^{+}2$
   2 x $^{+}2$ means two groups of $^{+}2$
   $^{+}2$ + $^{+}2$
   = $^{+}4$

Note:

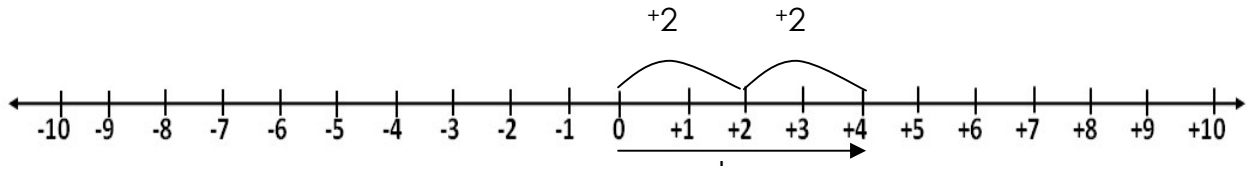
+ x + = +

- x - = +

- x + = -

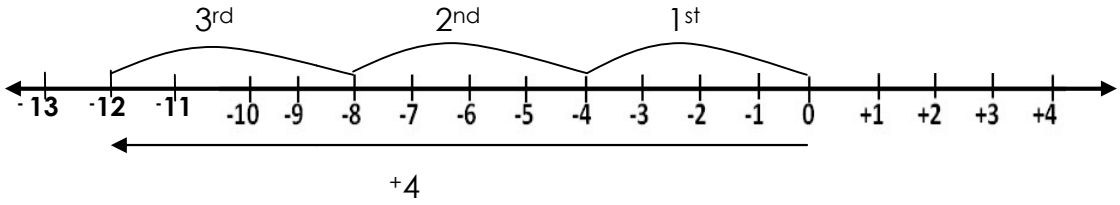
+ x - = -

Using a number line



2 x $^{+}2$ = $^{+}4$

2. Workout 3 x -4 using a number line
   3 x -4 means 3 laps of 4 steps to the negative side



3 x -4 = -12

Exercise

Multiply the following

1. 2 x -5
2. 3 x +4
3. 3 x -2
4. 4 x -2
5. 2 x -10

Use a number line to show the following multiplication

1. 3 x -2
2. 2 x -6
3. 2 x +5
4. 3 x -4
5. 4 x -2
6. 4 x -2

Topic : Integers

Subtopic : Application of integers

Competences

Subject : The learner;

- Applies the integers to solve the wordy question

Language : The learner;

- Reads the words in the sentence correctly
- Interprets the questions correctly

Methods : Explanation, guided discovery

Content :

Examples

Jack made a loss of sh. 80,000 on the first day and a profit of sh. 120,000 on the second day. What did he end up with?

Solution

Sh. 80,000 + sh. 120,000

= sh. 40,000

Exercise

1. The temperature of the baby rose from 37^0c by 2^0c. What was the final temperature of the baby?
2. The temperature of water dropped by 6^0c from 80^0c. Find the final temperature of water.
3. A canteen attendant made a loss of sh. 28000 and another loss of sh. 17000 later. Find the total loss he incurred.
4. Buyoga net ball team had 13 goals for and 8 goals against. Find the difference of their goal.
5. A trade made a profit of sh. 430,000 in May. In June she made a loss of sh. 280,000. What did she end up with?

Topical test

1. Which integer is seven steps to the ascending of $^-5$?
2. Arrange the following integers in ascending order.
   a) $^+5$, 0, $^-2$, $^+1$
   b) $^-3$, 8, 4, $^-7$
   c) 9, $^-8$, 0, $^-2$, 3

3. Without using a number line, workout;
   a) $^{+}16 + {}^{+}18$

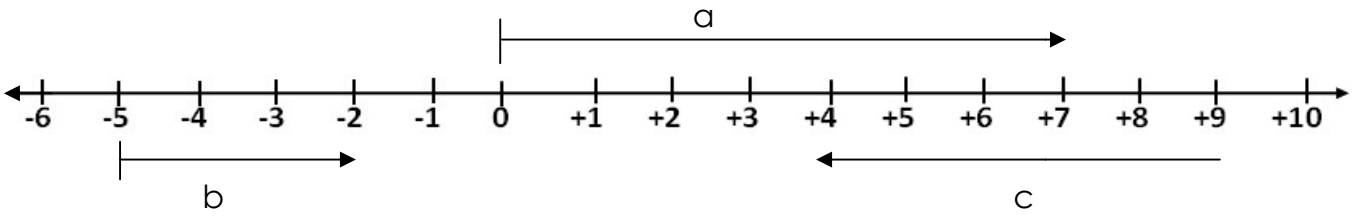
   b) $^{-}4 + {}^{-}7$

   c) $^{-}8 - {}^{+}5$

   d) $^{+}9 + {}^{-}13$

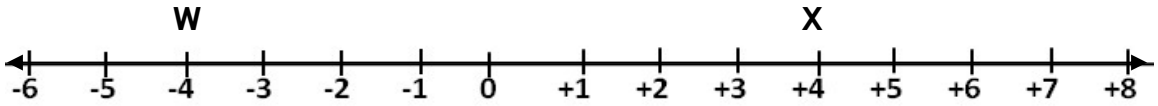
Workout the following as integers

4. We got 9 points for and 12 points against
5. A gain of sh. 7000 followed by a loss of sh. 11000
6. A score of 6 points against and 4 points for
7. Below is a number line, state the integers represented by the arrows



a_____
b_____
c_____

8. Which letter is to the left of the other, by how much?



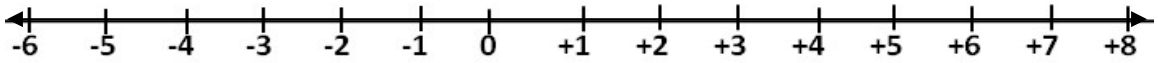
9. Use the symbols >, < or = to compare the following
   a) $^{-}8$ _____ $^{-}2$

   b) 6 _____ $^{-}10$

   c) $^{+}17$ _____ $^{-}15$

   d) $^{-}6$_____6

10. Given that x > -4. List all the negative members of x.
11. What is the universe of -8?
12. Workout $^{+}6 + {}^{+}6$
13. Multiply $3 \times {}^{-}6$
14. What integer is 6 steps left of 4?
15. Workout -6 - +4 using a number line below



END

Topic : Algebra

Subtopic : Forming algebraic expression

Competences

Subject : The learner;

- Forms algebraic expression correctly
- Express the statements involving algebra correctly

Language : The learner;

- Reads, spells, pronounces the words correctly; algebraic, more, thrice, double
- Interprets the language used in expressing the equa

Methods : Guided discovery and explanation

Content :

Forming algebraic expressions

Examples

1. Four more than 0
   (a + 4)

2. x less than 12
   12 – x

3. Subtract two from a number
   Let the number be y.
   y – 2
4. Double the sum of 2 and 4
   (4 + 2) x 2
   2 (4 + 2)

Activity

1. A number multiplied by three gives 18.
2. 10 less than a number is the same as 3.
3. Add nine to a number, the result is fourteen.
4. Sum 2x , x and 12 gives 30
5. When a number is divided by 3 and 4 is added to it, the result is 10.

Topic : Algebra

Subtopic : Collecting the like terms

Competences

Subject : The learner;

- Regroups number with similar unknowns correctly.
- Collects the like terms correctly

Language : The learner;

- Uses the words like collect, like, unknown correctly

Methods : Explanation, question and answer, guided discovery

Content :

Simplifying

Examples

4 boys + 3boys - 5 boys

4b + 3b – 5b

7b – 5b

= 2b

A father harvest 2 apples, 1 apple and finally 7 apples. How many apples did the farmer harvest altogether?

2a + 1a + 7a

3a + 7a

= 10a

Therefore; 10 apples were harvested.

Activity

Workout algebraically using letters instead of words

1. 22 houses - 12 houses
2. 1 apple + 2 apples + 3 apples
3. 12 pots + 8 pots – 10 pots
4. Three boys have 3 books, 5 books and 6 books respectively. How many books do they have altogether?
5. Collect the like terms
   2p + 4p – 1p
6. A + 2a
7. 4w – 2p + 6w + 5p
8. t – 6t + 8t

Topic : Algebra

Subtopic : Substitution

Competences

Subject : The learner;

- Identifies the value of the unknowns
- Substitutes correctly

Language : The learner;

- Pronounces the word substitute correctly
- Identifies and uses other words to mean substitution correctly

Methods : Guided discovery, explanation

Content :

Substitution

To substitute means to replace or change

Examples

Given that; z=2 and y = 4. Find the value of

1. z + y
   2 + 4
   = 6

2. y ÷z
   4 ÷ 2
   = 2

3. zy = z x y
   2 x 4
   = 8

Activity

1. If a = 12, b = 3 and c = 4. Find the value of;
   a) a+ b + c
   b) abc
   c) 5c + 4b
   d) 8a – 2b

2. Given that; P = 4, Q = 6 and R = 8
   Evaluate the following;
   a) Q + R

   b) $\frac{QR}{P}$

   c) 3P + R

   d) $\frac{4R+Q}{2}$

3. If b = c = 6, and f = 9. Find the value of;

a) bf

b) cb + f

c) $\frac{2f+b}{4}$

Topic : Algebra

Subtopic : Solving equation

Competences

Subject : The learner;

- Solves the equation by adding correctly

Language : The learner;

- Describes the equation correctly
- Uses the words like balancing like, terms, substitutes correctly

Methods : Guided discovery, group work

Content :

Solving equations by subtracting

Examples

1. Solve for x;
   x + 4 = 7
   x + 4 – 4 = 7 – 4
   x + 0 = 3

2. Find the value of P.
   P + 6 = 13
   P + 6 – 6 = 13 – 6
   P + 0 = 7
   P = 7

Exercise

Workout the value of the unknowns

1. n + 8 = 12
2. k + 4 = 9
3. y + 8 = 17
4. m + 5 = 10
5. x + 9 = 17
6. n + 7 = 14
7. p + 18 = 24
8. t + 24 = 36
9. 30 + g = 50

Topic : Algebra

Subtopic : Solving equations

Competences

Subject : The learner;

- Solves equation by adding correctly

Language : The learner;

- Describes the equation verbally correctly

Methods : Group work, guided discussion

Content :

Solving equation by adding

Examples

Find the value of the unknown

1. n - 8 = 12
   n - 8 + 8 = 12 + 8
   n + 0 = 20
   n = 20

2. b – 48 = 18
   b - 48 + 48 = 18 + 48
   b + 0 = 66
   b = 66

Exercise

1. Solve the equation
   a) n – 8 = 3
   b) c – 18 = 11
   c) b – 14 = 11
   d) p – 22 = 44
   e) d – 48 = 24

2. Matsika used sh. 550 and remained with sh. 450 of his pocket money. How much money did he have?
3. A teacher marked 15 pupils absent and 35 pupils present. How many pupils were in class?
4. Solve for P
   P – 34 = 26

Topic : Algebra

Subtopic : Solving equations

Competences

Subject : The learner;

- Solves by dividing correctly
- Divides correctly

Language : The learner;

- Reads and pronounces correctly ; co-efficient, quotient, divide

Methods : Explanation, Guided discovery, question and answer

Content :

Solving equations by dividing

Examples

1. Solve for a

   $5a = 20$

   $\frac{5a}{5} = \frac{20^{4}}{5}$

   a = 4

2. Solve for p

   $10p = 180$

   $\frac{10p}{10} = \frac{180^{18}}{10}$

   p = 18

   $2p + p = 18$

   $3p = 18$

   $\frac{3p}{3} = \frac{18^{6}}{3}$

   p = 6

Activity

Solve for the unknowns

1. 4x = 16
2. 3x = 24
3. 3x = 9
4. 11p = 165
5. 5k = 30
6. 8n = 56
7. 15n = 255
8. 3y = 108
9. 6y – 48
10. 2y = 48
11. 12r = 60
12. 8n = 72

Topic : Algebra

Subtopic : Forming and solving equations

Competences

Subject : The learner;

- Forms the quation correctly
- Solves the equation correctly

Language : The learner;

- Reads the sentences correctly
- Interprets the statements correctly

Methods : Guided discovery, explanation and group work

Content :

Forming and solving the equations

Examples

1. When 3 is subtracted from a number, the answer is 10. What is the number?
   Solution
   Let the number be h
   h – 3 = 10
   h – 3 + 3 = 10 + 3
   h + 0 = 13
   h = 13
   Therefore; the number is 13

2. In a class, 12 pupils are absent and 72 pupils are present. How many pupils are in the class?
   Let the total number of pupils be r.
   r - 12 = 72
   r – 12 + 12 = 72 + 12
   r + 0 = 84
   r = 84
   Therefore the class has 84 pupils.

Activity

1. A woman sold 5 of her hens and remained with 6. How many hens did she have?
2. By paying sh. 1500 a man cleared part of his debt and had sh. 3,300 still to pay. What was the full debt?
3. A teacher marked 24 pupils present and 9 pupils absent. How many pupils are in class?
4. I think of a number, add 4 to it and the result is 13. Find the number.
5. What number when subtracted from 12 gives the difference of 13?
6. Mugerwa loss 15 cows. How many cows did he have in the kraal at first?
7. Jack bought tomatoes from the market and found out that 36 of them were rotten and only 104 were good. How many tomatoes did he buy?
8. What number when added to 18 gives a sum of 22?
9. I think of a number , add 9 to it, the answer is 13. What is the number?
10. Subtract 6 from a number. If the answer is 4, what is the number?

Topic : Algebra
Subtopic : solving equations
Competences
Subject : The learner;
- Collects the like terms correctly
- Solves by dividing correctly

Language : The learner;
- Describes the algebraic expression correctly
- Reads and interprets the word; application of algebra correctly.

Methods : Discussion, explanation, Guided discovery
Content :
More on solving equations
Examples

Solve for a

$2a + 5 = 15$

$2a + 5 - 5 = 15 - 5$

$21 + 0 = 10$

$$\frac{2a}{2} = \frac{10}{2}$$

a = 5

Solve for a

2a + 5 = 15

2a + 5 – 5 = 15 – 5

21 + 0 = 10

$$\frac{2a}{2} = \frac{10}{2}$$

a = 5

Find the value of y

6y – 5 = 19

6y – 5 + 5 = 19 + 5

6y + 0 = 24

$$\frac{6y}{6} = \frac{24}{6}$$

y = 4

Activity

1. Larok multiplied a number by 5 and added 4 to it. His result was 24. Find the number.
2. Find the value of r. 2r – 6 = 8
3. Workout the value of y: 4y – 8 = 12
4. 4y – 8 = 2y. Find the value of y
5. Solve for a: 4a + 2a + 5 = 23
6. 3x + 2 = 20, find the value of x.
7. Solve for a: a + 2a + 1 = 7
8. Solve for p: p + 7 + 4p = 27
9. 3n + 1 = 10. Find the value of n.
10. Three children received 2p, 3p and sh. 500. If they all got sh. 1500. Find how much the first got.

Topic : Algebra

Subtopic : Solving equations involving square

Competences

Subject : The learner;

- Finds the square root of a number correctly
- Solves the equation correctly

Language : The learner;

- Uses the words, square, square root factorizing correctly

Methods : Explanation, Guided discovery and discussion

Content : Solving equations involving squares

Examples

Find the value of f if $f^2 = 25$

$$\sqrt{\frac{f^2}{f^2}} = \sqrt{\frac{25}{25}}$$

$$\sqrt{(fxf)} = \sqrt{(5x5)}$$

f = 5

$$\sqrt{\frac{W^2}{W^2}} = \sqrt{\frac{144}{144}}$$

$$\sqrt{(WxW)} = \sqrt{(2x2)x(2x2)x3x3)}$$

W = 2 x 2 x 3

W = 4 x 3

W = 12

Exercise

Find the value of the unknowns

1. $r^2 = 16$
2. $x^2 = 49$
3. $p^2 = 64$
4. $w^2 = 100$
5. $b^2 = 169$
6. $y^2 = 4$
7. $a^2 = 81$
8. $h^2 = 225$
9. $d^2 = 121$
10. $g^2 = 9$

Topic : Algebra

Subtopic : Finding the sides of a square

Competences

Subject : The learner;

- Applies the formula of the square correctly
- Finds the square roots of number correctly
- Answers related question correctly

Language : The learner;

- Reads the words; prime factorise, pairs, square, roots correctly
- Uses the words in the sentences correctly

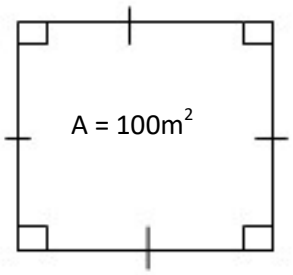
Methods : Guided discovery, question and answer

Content :

Finding the sides of a square using square roots

Example

The area of a square is 100m^2. Find the sides of the square.



Area = S x S

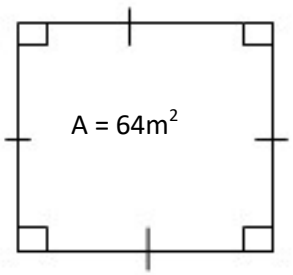
$$\frac{100m^2}{\sqrt{100m^2}} = \frac{S^2}{\sqrt{S^2}}$$

$$\sqrt{(10x10)(mxm)} = \overline{(SxS}$$

10M = = S

A square garden has an area of 64m^2.

a) Find the length of each side



Area = S x S

$$\frac{Area}{\sqrt{S^2}} = \frac{SxS}{\sqrt{64\ m^2}}$$

$$\sqrt{(SxS)} = \sqrt{(8x8xmxm}$$

S = 8m

Each side is 8m

b) Find the perimeter around the garden

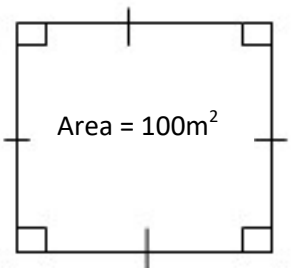
Perimeter = 45

= 4 x 8m

= 32m

Activity

1. What is the sides of the square whose area is $16cm^2$?
2. The area of a square is $25m^2$. Find the size of one side
3. Find one side of a square whose area is $81cm^2$.
4. A square garden has an area of $36m^2$. Find its perimeter.
5. What is the perimeter of a square whose area is $64cm^2$.
6. A square table mat has an area of $225cm^2$. Find the length of each side.
7. Workout the total distance around a square whose area is $121m^2$.
8. Find the perimeter of the figure below



Topic : Algebra

Subtopic : Solving equation involving fractions

Competences

Subject : The learner;

- Identifies the LCD of the fractions correctly
- Solves by multiplying on both sides correctly

Language : The learner;

- Reads, spells, pronounces the words; denominator, quotient, multiple and uses them in sentences correctly

Methods : Guided discovery, explanation, question and answer

Content : Solving equations involving fractions

Examples

Solve for x :

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

$\cancel{3} \times \frac{x}{\cancel{3}} = \frac{4}{1} \times 3$

x = 12

Solve for p.

$\frac{p}{7} = 8$

$7 \times \frac{p}{7} = 8 \times 7$

p = 56

Solve for r

$\frac{2r}{3} = 4$

$\cancel{3} \times \frac{2r}{\cancel{3}} = 4 \times 3$

$\frac{\cancel{2}r}{\cancel{2}} = \frac{12^{6}}{\cancel{2}}$

r = 6

Exercise

Find the value of the unknowns

1. $\frac{a}{4} = 9$

2. $\frac{f}{6} = 9$

3. $\frac{n}{6} = 6$

4. $\frac{3r}{4} = 6$

5. $\frac{2k}{3} = 8$

6. What number when divided by 9 gives 21?

7. 3 boys shared x exercise books. How many books did they share if each boy got 12 books?

8. A father divided some money between two children and each got sh 150. How much did he give out?

9. Solve for x ; $\frac{x}{7} = 21$

10. Workout the value of m if m ÷ 8 = $\frac{3}{4}$.

Topic : Algebra

Subtopic : Finding the sides of a square or rectangle with perimeter

Competences

Subject : The learner;
- Draws the figure given correctly
- Divides to find the missing side correctly

Language : The learner;
- Reads and interprets the words in the sentences correctly

Methods : Explanation, Guided discovery, Discussion

Content :

Finding the sides of a rectangle/ square when perimeter is given

Examples

A square has a perimeter of 36cm. Find the length of the square

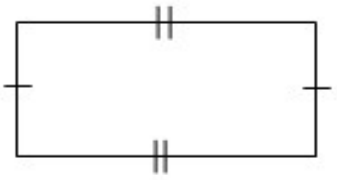
P = 4S

36cm = 4S

$\frac{36^{9}}{4}$ cm = $\frac{4S}{4}$

9cm = S

Below is a rectangle. Its perimeter is 9cm. Find the width



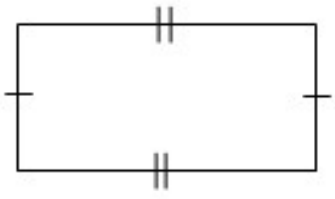
P = 18cm

L + W + L + W = P
P = 2 (L + W)
18cm = 2 (5cm + W)
18cm = 10cm + 2W
18cm – 10cm = 10cm – 10cm + 2W
8cm = 0 + 2W
$\frac{8^{4}\,cm}{2} = \frac{2W}{2}$
4cm = W

Exercise

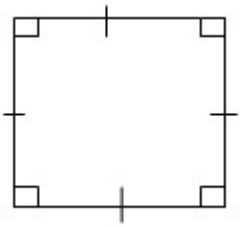
Find the missing side of each figure

1.



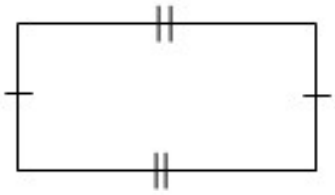
P = 24cm

2.



L P = 40cm

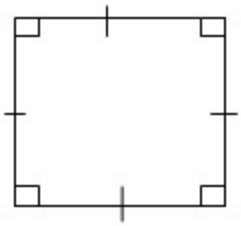
3.



W P = 20cm

7cm

4.



P = 28cm

5cm

5. Find the length of a rectangle whose perimeter is 20cm and width 4cm.
6. Workout the sides of a square with a perimeter 48cm

Topic : Algebra

Subtopic : Finding unknown side of rectangle

Competences

Subject : The learner;

- Solves the word application questions correctly
- Illustrates by drawing the figure correctly

Language : The learner;

- Reads the words in the sentences correctly

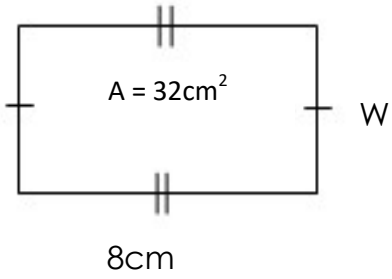
Methods : Guided discovery, explanation

Content :

Finding the unknown side of a rectangle when area is given

Example

The area of a rectangle is 32cm2. If its length is 8cm, find its width



Area = L x W

$32cm^2 = 8cm \times W$

$$\frac{324cm^2}{8cm} = \frac{8cmW}{8cm}$$

4cm = 4 T

The width is 4cm

Activity

1. The area of a rectangle is 56cm2. The length is 8cm. Find its width.
2. A rectangular figure has its area as 24cm2. Its width is 4cm. Find its length.
3. The area of a rectangle is 12cm2. If its length is 4cm, find its width.
4. Find the width of a rectangle whose area is 35m and length 7m .

Note; More in MK P.5 page 286.

Topic : Algebra

Subtopic : more on the sides of a rectangle

Competences

Subject : The learner;

- Solves for the unknown
- Applies and uses the correct forms

Language : The learner;

- Uses the word simplify correctly

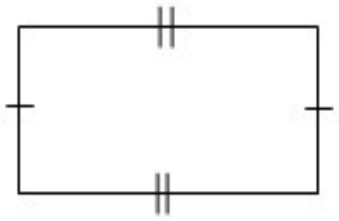
Methods : Guided discovery, explanation, question and answer

Content :

Find the unknowns on the sides of a rectangle

Example

The figure below is a rectangle. Study it carefully



Pcm

2p + 3

a) Find the value of p

2p + 3 = 7

2p + 3 – 3 = 7 – 3

2p + 0 = 4

$\frac{2p}{2} = \frac{4}{2}$

p = 2

b) Find its perimeter

Actual length width

2p + 3

2 x 2 + 3

4 + 3

= 7cm

P = 2cm

c) Workout its area

Area = L x W

7cm x 2cm

= 14cm².

P = 2 (L+W)

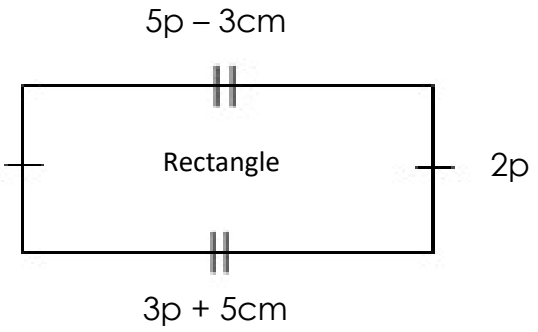
2 (7 + 2)cm

2 x 9cm

=18

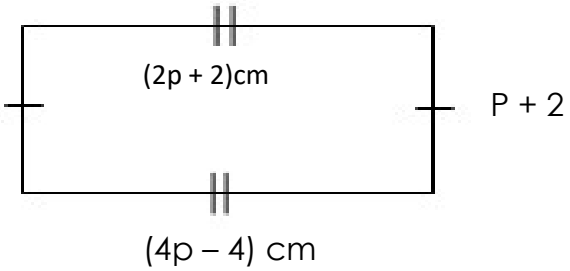
Exercise

Study the figure below



a) Find the value of P
b) Find the perimeter of the rectangle
c) Workout its area

2. Below is a rectangle



a) Find the value of p
b) Find the actual length and width
c) Workout the perimeter of the rectangle
d) What is its area?

Topic : Algebra
Subtopic : Finding the missing sides when volume is given
Competences
Subject : The learner;

- Illustrates the cuboid correctly
- Applies a suitable formular
- Substitutes in the formular correctly

Language : The learner;

- Reads and interpret the words used in sentences correctly

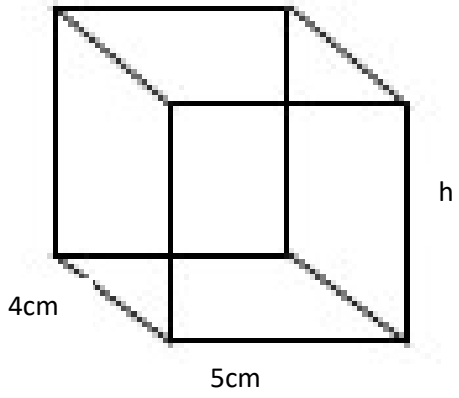
Methods : Guided discovery, question and answer and explanation

Content :

Finding the missing sides on a cuboid / when volume is given

Example

The volume of a cuboid is 60cm^3. If its length is 5cm and width 4cm, find its height.



Volume = L x W x H

60cm3 = 5cm x 4cm x H

60cm3 = 20cm2 x H

$$\frac{60^3\,cm^3}{20cm^2} = \frac{20\ cm^2 xH}{20cm^2}$$

3cm = H

The height of a cuboid is 3cm

Activity

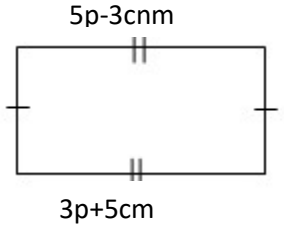
Form the equation and solve for the unknown

1. The volume of a box is 24cm^3. Its length is 4cm, width 3cm. Find its height.
2. Find the width of a box with a length 6cm, height 5cm and volume of 120cm^3.
3. The volume of a cuboid is 72cm^3. Its width is 4cm and height 3cm. Find its length.
4. The volume of a box is 49cm^3 . Its length and width are 4cm and 3cm respectively. Find its height
5. The volume of a cuboid is 100cm^3. Its length is 5cm, height 5cm. Find the width.

Topical test

Attempt all questions

1. Simplify: 2a + 3b + a + 2b
2. Solve for x; 2x + 3x = 30
3. What is the value of p if P^2 =36.
4. Solve 5p + 4p – 7p = 16
5. Simplify; 6m – 2n + 5n – 3m
6. Workout x + x – x + x + x
7. Find the valye of p; 2p – 10 = 4
8. Find the value of $\frac{3b+6a}{c}$ if a = 2, b = 4 and c = 3
9. Solve; x + 2x + 3x = 48
10. Three boys weighs 90kg. If their weight are 2xkg, xkg and 3xkg, what is the value of x?
11. The length of a rectangular garden is 10 metres. If its area is 150 square metres, find its width.
12. Solve for y and x;
    $\frac{2}{3} = \frac{x}{15} = \frac{y}{12}$
13. Find the value of x. 9x = 108
14. Solve for p; $p^2 + 2 = 27$
15. A man is 4 time as old as his daughter. If he isd x years old and their total age is 60 years, how old is each?
16. Find the value of p in centimeters.



17. Solve for c:- 4x – 2 + x = 8
18. Solve : $\frac{3a}{5} = 9$
19. Find the height of a cuboid whose volume is length 8cm and width 2cm.
20. Kaija has 4 time as many goats at Paul. If they both have 40 goats, how many goats does each have?