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Perimeter.

Perimeter is the distance around a two-dimensional shape

Formulas for finding perimeter of regular objects

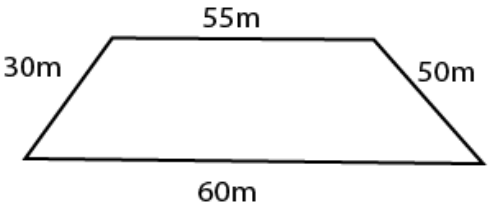
Perimeter of a rectangle = 2l + 2w (where l = length, w= width)

Perimeter of a squire = 4l (l = size of one side)

Circumference of a circle = $2\pi r = 2\pi d$ (where r = radius, d = diameter, d = 2r)

Example 1

Ishaka has a plot of land with measurements as shown below

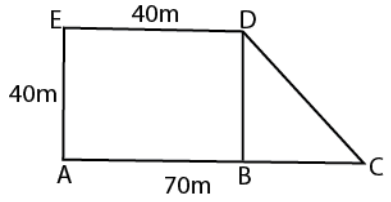


What is the distance around Ishaka's plot?

Distance around the plot	= sum of all sides
	= 30 + 55 + 50 + 60
	= 195cm

Example 2

Juma has a piece of land (plot) with measurements as shown in the figure below. He would like to put a line of fencing wire around the piece of land. What is the minimum length (in metres) of facing wire he would require?



$DC^2 = BD^2 + BC^2$

$=40^2 + 30^2$

$= 1600 + 900$

$DC^2 = 2500$

$DC = \sqrt{2500}$

$=50$

Perimeter = AB + CD + DE + EA

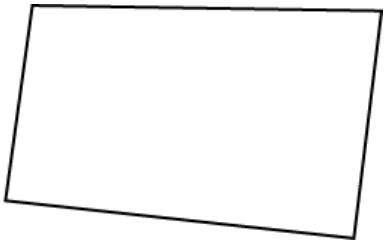
= 70+50+40+40

=200m

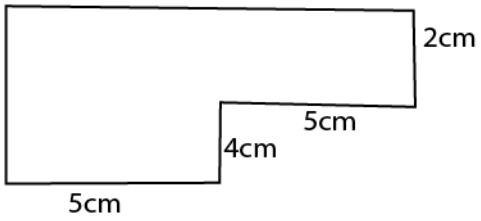
Hence the length of the wire required = 200m

Exercise

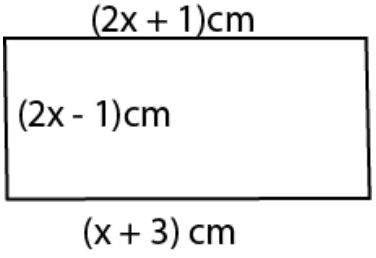
1. By measuring, find the perimeter of the figure below in centimeters.



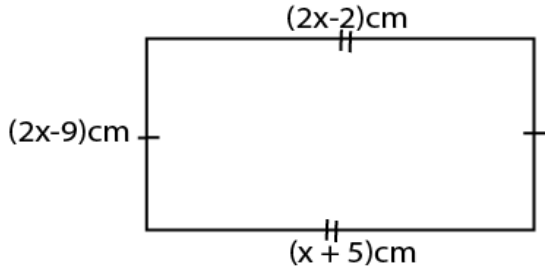
2. Find the perimeter of the figure below:



3. The figure below is a rectangle. Find its perimeter



4. The figure below is a rectangle. Use the information given to answer the questions that follow:

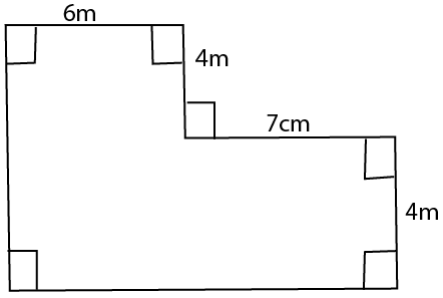


a) What is the perimeter of the rectangle?

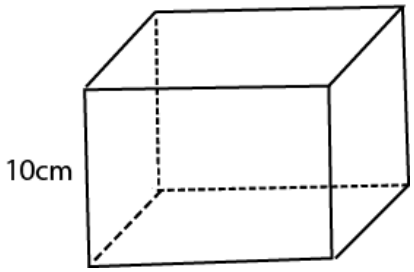
b) Find the area of the rectangle.

c) Find the length of the diagonal of the rectangle.

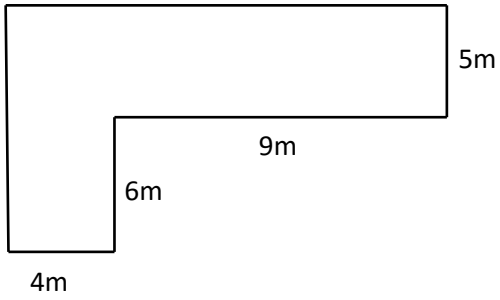
5. Akello has a garden of the shape shown. Find the distance around her garden in metres.



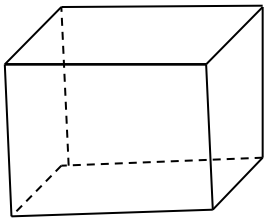
6. The figure below shows a cube whose edges are made of metal wire. If the length of one edge is 10 cm, find the length of wire needed to make the cube.



7. Find the perimeter of the figure below



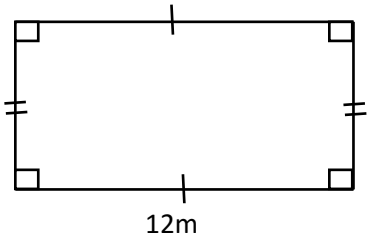
8. How many edges does the below have



12 edges

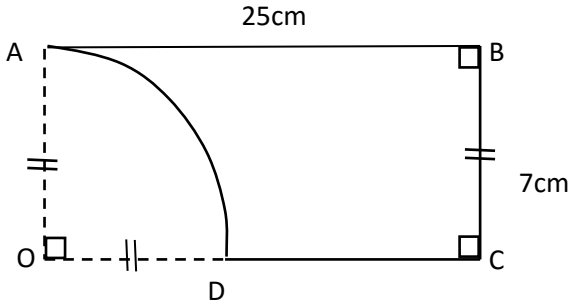
9. The circumference of a circle is 88cm. find it radius. (Take $\pi = \frac{22}{7}$)

10. The perimeter of the rectangle below is 36m. Find its width if the length is 12m.



11. Carefully study the diagram below and use it to answer the questions that follow.

Line AB = OC and AO = OD = BC.



(a) Find the length of arc AD. (Take $\pi = \frac{22}{7}$) (02marks)

(b) Work out perimeter of ABCDA (03marks)

12. Opoka rides a distance of 2.97km from his home to school on a bicycle. The wheel of the bicycle has a diameter of 63cm.

(a) How many revolutions does the wheel make to cover the distance? (Take π-22/7)

(03m arks)

(b) If Opaka makes 50 revolutions in one minute, how long does he take to reach the school?

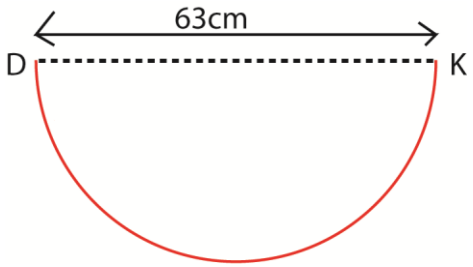
(02 marks)

13. (a) How many poles are needed to fence the flower garden?

(Take $\pi = \frac{22}{7}$) (03marks

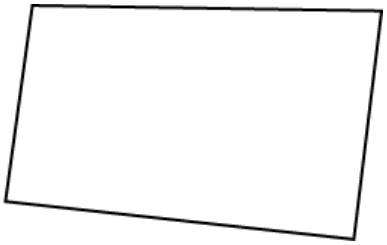
(b) If each pole costs shs.3, 000, how much money will the school spend on the poles? (02marks)

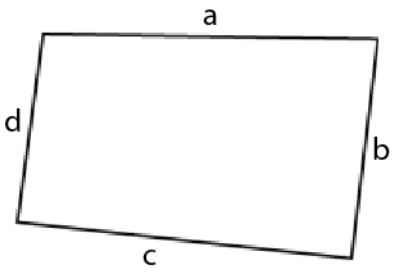
14. Find the length of the arc DK in the diagram below (Use $\pi = \frac{22}{7}$)



Suggested answers

1. By measuring, find the perimeter of the figure below in centimeters.

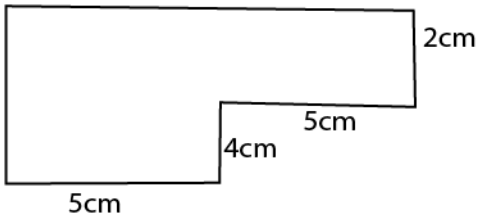




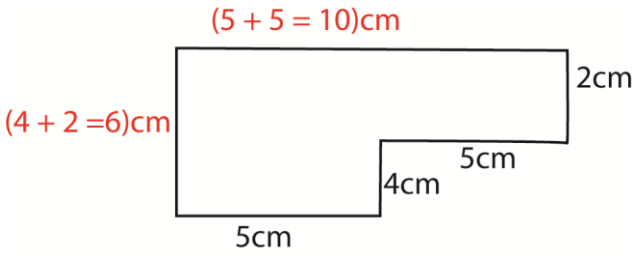
Measure the sides a, b, c, and d cm

Perimeter = (a + b + c + d)cm

2. Find the perimeter of the figure below:



Solution



Perimeter = 6 + 10 + 2+ 5+ 4 + 5 = 32cm

3. The figure below is a rectangle. Find its perimeter

First find the value of x

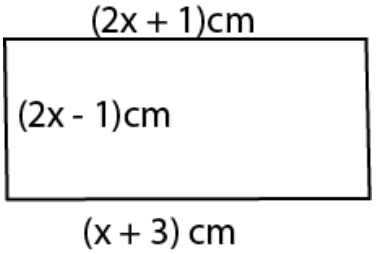
2x +1 = x + 3

Collect like terms

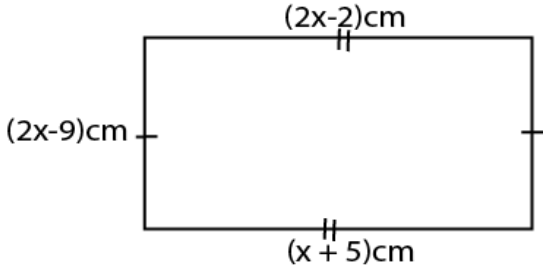
x = 2

Perimeter = 2(l +w)

= 2(2 x 2 +1 + 2 x 2 – 1)



4. The figure below is a rectangle. Use the information given to answer the questions that follow:



d) What is the perimeter of the rectangle?

Value of x

$2x - 2 = x + 5$

$x = 7$

Length = $(x + 5) = 7 + 2 = 12$

Width = $2x - 9 = 2 \times 7 - 9 = 5$

Perimeter = $2(L + W) = 2(12 + 5) = 2 \times 17 = 34$ cm

e) Find the area of the rectangle.

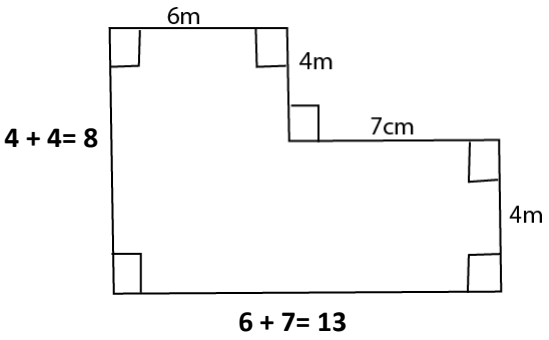
Area = L x W

$= 12 \times 5 = 60cm^2$

f) Find the length of the diagonal of the rectangle.

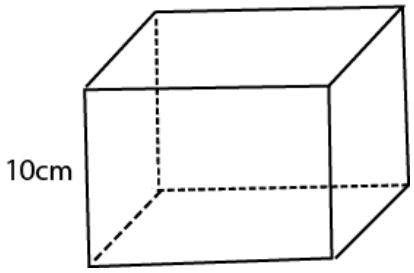
Diagonal = $\sqrt{12^2 \; x \; 5^2} = \sqrt{(144 + 25)} = \sqrt{169} = 13cm$

5. Akello has a garden of the shape shown. Find the distance around her garden in metres.



Distance = 8 + 6 + 4 + 7 + 4 + 13 = 42

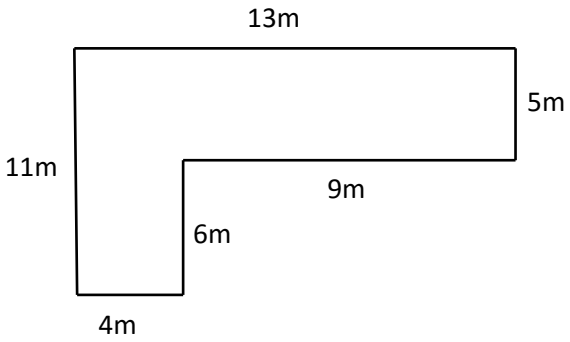
6. The figure below shows a cube whose edges are made of metal wire. If the length of one edge is 10 cm, find the length of wire needed to make the cube.



The length of the wire = 10 cm x 12 sides

= 120 cm

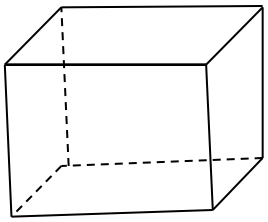
7. Find the perimeter of the figure below



Perimeter is equal to the sum of the lengths of the sides of the figure

= 9 +6 + 4 +11 + 13 +5 = 48 m

8. How many edges does the below have



12 edges

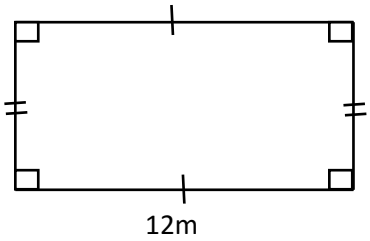
9. The circumference of a circle is 88cm. find it radius. (Take $\pi = \frac{22}{7}$)

Circumference $= 2\pi r = 88$

$2 \times \frac{22}{7} r = 88$

$r = \frac{88 \times 7}{2 \times 22} = 14cm$

10. The perimeter of the rectangle below is 36m. Find its width if the length is 12m.



Perimeter = (2L + 2W)

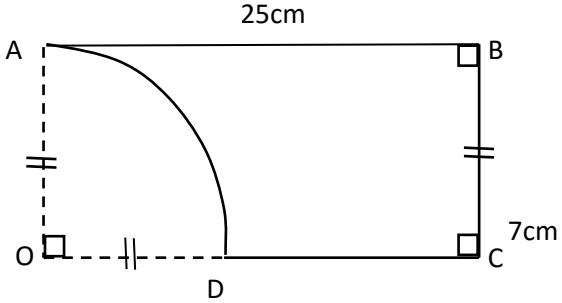
36 = (2 x 12 + 2W)

2W = 36 – 24 = 12

W = 6cm

11. Carefully study the diagram below and use it to answer the questions that follow.

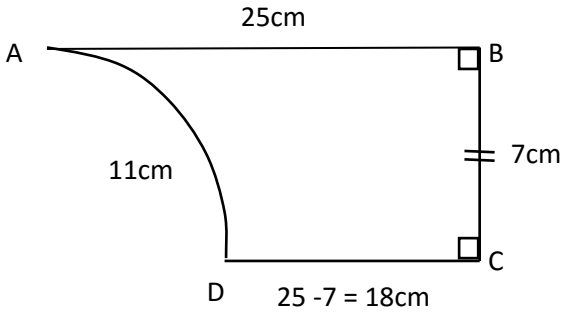
Line AB = OC and AO = OD = BC.



(a) Find the length of arc AD. (Take π = $\frac{22}{7}$) (02marks)

Length Ad = $\frac{1}{4}\pi d = \frac{1}{2}\pi r = \frac{1\ x\ 22\ x\ 7}{4\ x\ 7} = 11cm$

(b) Work out perimeter of ABCDA (03marks)



Perimeter = (11+ 18 + 25 + 7) = 61cm

12. Opoka rides a distance of 2.97km from his home to school on a bicycle. The wheel of the bicycle has a diameter of 63cm.

(a) How many revolutions does the wheel make to cover the distance? (Take π-22/7)

Change 2.97km to cm = 2.97 x 100000 = 297000cm (03m arks)

Circumference of the wheel = πd = $\frac{22}{7}\ x\ 63 = 198cm$

Number of revolutions = $\frac{distance}{circumfrnce} = \frac{297000}{198} = 1500revolution$

(b) If Opaka makes 50 revolutions in one minute, how long does he take to reach the school?

50 revolution per minutes = 1minute (02 marks)

1500 revolutions take $\frac{1\ x\ 1500}{50} = 30\ minutes$

13. (a) How many poles are needed to fence the flower garden?

(Take π= $\frac{22}{7}$) (03marks

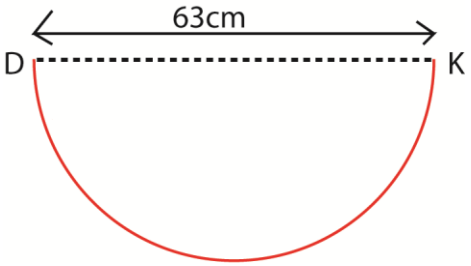
Circumference = πd = $\frac{22}{7}$ x 14 = 44m or 4400cm

No of pole = $\frac{4400}{80}$ = 55poles

(c) If each pole costs shs.3,000, how much money will the school spend on the poles? (02marks)

Amount spent on poles = 3000 x 55 = 165000/=

14. Find the length of the arc DK in the diagram below (Use π = $\frac{22}{7}$)



Solution

Half circumference (DK) = $\frac{1}{2}\pi d = \frac{1}{2}x\ \frac{22}{7}\ x\ 63\ = 99cm$

Thank you