RS Aggrawal Solutions for Class 6 Math Chapter 21 Concept Of Perimeter And Area

ANSWER:

We know: Perimeter of a rectangle = 2×(Length+Breadth)2×(Length+Breadth)

(i) Length = 16.8 cm
Breadth = 6.2 cm
Perimeter = 2×(Length+Breadth)2×(Length+Breadth)
= 2×(16.8+6.2) =46 cm2×(16.8+6.2) =46 cm
(ii) Length = 2 m 25 cm
=(200+25) cm (1 m = 100 cm)
= 225 cm
Breadth =1 m 50 cm
= (100+50) cm (1 m = 100 cm)
= 150 cm
Perimeter = 2×(Length+Breadth)2×(Length+Breadth)
= 2×(225+150) =750 cm2×(225+150) =750 cm
(iii) Length = 8 m 5 dm
= (80+5) dm (1 m = 10 dm)
= 85 dm
Breadth = 6 m 8 dm
= (60+8) dm (1 m = 10 dm)
= 68 dm
Perimeter = 2×(Length+Breadth)2×(Length+Breadth)
= 2×(85+68) =306 dm2×(85+68) =306 dm

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ANSWER:

Length of the field = 62 m
Breadth of the field = 33 m
Perimeter of the field = 2(l + b) units
= 2(62 + 33) m =190 m
Cost of fencing per metre = Rs 16
Total cost of fencing = Rs (16××190) = Rs 3040

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ANSWER:

Let the length of the rectangle be 5*x* m.
Breadth of the rectangle = 3*x* m
Perimeter of the rectangle = 2(*l* + *b*)
= 2(5*x* + 3*x*) m
= (16*x*) m
It is given that the perimeter of the field is 128 m.

∴16x=128⇒x=12816=8∴Length =(5×8)=40mBreadth =(3×8)=24m∴16x=128⇒x=12816=8∴Length =(5×8)=40mBreadth =(3×8)=24m

Page No 222:

ANSWER:

Total cost of fencing = Rs 1980
Rate of fencing = Rs 18 per metre

Perimeter of the field
= Total costRate=Rs 1980Rs 18/m=(198018) m=110 mTotal costRate=Rs 1980Rs 18/m=(198018) m=110 m

Let the length of the field be *x* metre.
Perimeter of the field = 2(*x* + 23) m

∴2(x+23)=110⇒(x+23)=55x=(55−23)=32∴2(x+23)=110⇒(x+23)=55x=(55-23)=32
Hence, the length of the field is 32 m.

Page No 222:

ANSWER:

Total cost of fencing = Rs 3300
Rate of fencing = Rs 25/m
Perimeter of the field
= Total cost Rate of fencing=(Rs 3300Rs 25/m)=330025 m=132 mTotal cost Rate of fencing=(Rs 3300 Rs 25/m)=330025 m=132 m

Let the length and the breadth of the rectangular field be 7*x* and 4*x*, respectively.
Perimeter of the field = 2(7*x* + 4*x*) = 22*x*

It is given that the perimeter of the field is 132 m.

∴ 22x=132⇒x=13222=6∴Length of the field =(7 × 6) m=42 mBreadth of the field =(4 ×

6) m=24 m∴ 22x=132⇒x=13222=6∴Length of the field =(7 × 6) m=42 mBreadth of the fiel d =(4 × 6) m=24 m

Page No 222:

ANSWER:

(i) Side of the square = 3.8 cm
Perimeter of the square = (4××side)
= (4××3.8) = 15.2 cm

(ii) Side of the square = 4.6 cm
Perimeter of the square = (4××side)
= (4××4.6) = 18.4 cm

(iii) Side of the square = 2 m 5 dm
= (20+5) dm (1 m = 10 dm)
= 25 dm
Perimeter of the square = (4××side)
= (4××25) = 100 dm

Page No 222:

ANSWER:

Total cost of fencing = Rs 4480
Rate of fencing = Rs 35/m
Perimeter of the field
= Total costRate=Rs 4480Rs 35/m=448035 m=128 mTotal costRate=Rs 4480Rs 35/m=448035 m=1 28 m

Let the length of each side of the field be *x* metres.
Perimeter = (4*x*) metres
∴4x=128⇒x=1284=32 ∴4x=128⇒x=1284=32

Hence, the length of each side of the field is 32 m.

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ANSWER:

Side of the square field = 21m
Perimeter of the square field = (4××21) m

= 84 m

Let the length and the breadth of the rectangular field be 4*x* and 3*x,* respectively.
Perimeter of the rectangular field = 2(4*x* + 3*x*) = 14*x*

Perimeter of the rectangular field = Perimeter of the square field

∴14x=84 ⇒x=8414=6∴14x=84 ⇒x=8414=6
∴ Length of the rectangular field =(4 × 6) m=24 mBreadth of the rectangular field = (3 × 6) m=18 m∴ Length of the rectangular field =(4 × 6) m=24 mBreadth of the rectangular field = (3 × 6) m=18 m

Page No 222:

ANSWER:

(i) Sides of the triangle are 7.8 cm, 6.5 cm and 5.9 cm.
Perimeter of the triangle = (First side + Second side + Third Side) cm
= (7.8 + 6.5 + 5.9) cm
= 20.2 cm

(ii) In an equilateral triangle, all sides are equal.
Length of each side of the triangle = 9.4 cm
∴∴ Perimeter of the triangle = (3 ×× Side) cm
= (3 ×× 9.4) cm
= 28.2 cm

(iii) Length of two equal sides = 8.5 cm
Length of the third side = 7 cm
∴∴ Perimeter of the triangle = {(2 ×× Equal sides) + Third side} cm
= {(2 ×× 8.5) + 7} cm
= 24 cm

Page No 222:

ANSWER:

(i) Length of each side of the given pentagon = 8 cm
∴∴ Perimeter of the pentagon = (5××8) cm
= 40 cm

(ii) Length of each side of the given octagon = 4.5 cm

∴∴ Perimeter of the octagon = (8××4.5) cm
= 36 cm

(iii) Length of each side of the given decagon = 3.6 cm
∴∴ Perimeter of the decagon = (10××3.6) cm
= 36 cm

Page No 222:

ANSWER:

(i) Perimeter of the figure = Sum of all the sides
=(27 + 35 + 35 + 45) cm
= 142 cm
(ii) Perimeter of the figure = Sum of all the sides
=(18 + 18 + 18 + 18) cm
= 72 cm
(iii) Perimeter of the figure = Sum of all the sides
=(8 + 16 + 4 + 12 + 12 + 16 + 4) cm
= 72 cm

Page No 224:

ANSWER:

(i) Radius, *r* = 28 cm

∴ Circumference of the circle, C=2πr =(2×227×28)
=176 cmHence, the circumference of the given circle is 176 cm.∴ Circumference of the circle, C=2πr =(2×227×28)
=176 cmHence, the circumference of the given circle is 176 cm.

(ii) Radius, *r* = 10.5 cm
∴ Circumference of the circle, C=2πr=(2×227×10.5)=66 cmHence, the circumference of the given circle is 66 cm.∴ Circumference of the circle, C=2πr=(2×227×10.5)=66 cm
Hence, the circumference of the given circle is 66 cm.

(iii) Radius, *r* = 3.5 m
∴ Circumference of the circle, C=2πr=(2×227×3.5)=22 mHence, the circumference

of the given circle is 22 m.∴ Circumference of the circle, C=2πr=(2×227×3.5)=22 mHence , the circumference of the given circle is 22 m.

Page No 224:

ANSWER:

(i)

Circumference=2πr =π(2r) =π× Diameter of the circle (d) (Diameter=2×radius)⇒Circumference=Diameter×π Diameter of the given circ le is 14 cm.Circumference of the given circle=14×π⇒(14×22 7)=44 cmCircumference of the given circle is 44 cm.Circumference=2πr =π(2r) = π× Diameter of the circle (d) (Diameter=2×radius)⇒Circumference=Diameter×π Diamet er of the given circle is 14 cm.Circumference of the given circle=14×π⇒(14×22 7)=44 cmCir cumference of the given circle is 44 cm.

(ii)
Circumference=2πr =π(2r) =π×Diameter of the circle(d) (Diameter=2×Radius)⇒Circumference=Diameter×πDiameter of the given circle i s 35 cm.⇒Circumference of the given circle=35×π ⇒(35×22 7)=110 cmCircumference of the given circle is 110 cm.Circumference=2πr =π(2r) =π ×Diameter of the circle(d) (Diameter=2×Radius)⇒Circumference=Diameter×πDiameter of the given circle is 35 cm.⇒Circumference of the given circle=35×π ⇒(35×22 7)=110 cmC ircumference of the given circle is 110 cm.

(iii)
Circumference=2πr =π(2r) =π×Diameter of the circle(d) (Diameter=2×Radius)⇒Circumference=Diameter×πDiameter of the given circle i s 10.5 m.Circumference of the given circle=10.5×π⇒(10.5×22 7)=33 mCircumference of the given circle is 33 m.Circumference=2πr =π(2r) =π×D iameter of the circle(d) (Diameter=2×Radius)⇒Circumference=Diameter×πDiameter of t he given circle is 10.5 m.Circumference of the given circle=10.5×π⇒(10.5×22 7)=33 mCircu mference of the given circle is 33 m.

Page No 224:

ANSWER:

Let the radius of the given circle be *r* cm.
Circumference of the circle = 176 cm
Circumference = 2πr2πr

∴ 2πr=176 ⇒r=1762π⇒r=(1762×722) ⇒r=28 The radius of the given circle is 28 cm.∴ 2πr =176 ⇒r=1762π⇒r=(1762×722) ⇒r=28 The radius of the given circle is 28 cm.

Page No 224:

ANSWER:

Let the radius of the circle be r cm.Diameter=2×Radius=2r cmCircumference of the wheel=264 cmCircumference of the wheel=2πr∴2πr=264⇒2r=264π⇒2r=(264×722)⇒2r=84 Diameter of the given wheel is 84 cm.Let the radius of the circle be r cm.Diameter=2× Radius=2r cmCircumference of the wheel=264 cmCircumference of the wheel=2πr∴2πr=264⇒2r=264π⇒2r=(264×722)⇒2r=84 Diameter of the given wheel is 84 cm.

Page No 224:

ANSWER:

Radius of the wheel =Diameter of the wheel2Diameter of the wheel2
⇒r=772cm⇒r=772cm
Circumference of the wheel =2π r2π r
=(2×227×772)=242 cm=(2×227×772)=242 cm

In 1 revolution the wheel covers a distance equal to its circumference.

∴ Distance covered by the wheel in 1 revolution=242 cm∴ Distance covered by the wheel in 500 revolutions=(500 × 242) cm =121000 cm =1210 m (100 cm= 1m) =1.21 km (1000 m=1 km)∴ Distance covered by the wheel in 1 revolution=242 cm∴ Distance covered by the wheel in 500 revolutions=(500 × 242) cm =121000 cm =1210 m (100 cm= 1m) =1.21 km (1000 m=1 km)

Page No 224:

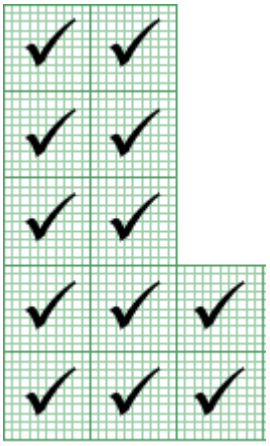
ANSWER:

Radius of the wheel(r)=Diameter of the wheel2r=702cm=35 cmCircumference of the wheel = 2πr =(2×227×35) =220 cmIn one revolution, the wheel covers the distance equal to its circumference.∴ 220 cm distance =1 revolution∴1 cm distance =1220 revolution∴1km (or 100000 cm) distance =1×100000220 revolution (∴ 1 km=100000 cm)∴1.65 km distance = 1.65×100000 220 revolutions = 750 revolutions Thus,the wheel will make 750 revolutions to travel 1.65 km.Radius

of the wheel(r)=Diameter of the wheel2r=702cm=35 cmCircumference of the wheel = 2πr =(2×227×35) =220 cmIn one revolution, the wheel covers the distance e qual to its circumference.∴ 220 cm distance =1 revolution∴1 cm distance =1220 revolution∴ 1km (or 100000 cm) distance =1×100000220 revolution (∴ 1 km=100000 cm)∴1.65 km dis tance = 1.65×100000 220 revolutions = 750 revolutions
Thus,the wheel will make 750 revolutions to travel 1.65 km.

Page No 226:

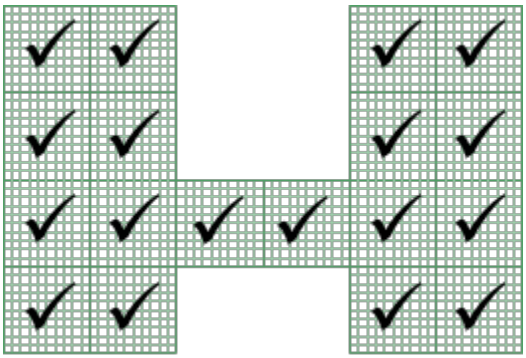
ANSWER:



The figure contains 12 complete squares.
Area of 1 small square = 1 sq cm
∴ Area of the figure = Number of complete squares ×× Area of the square
=(12×1) sq cm(12×1) sq cm
=12 sq cm

Page No 226:

ANSWER:



The figure contains 18 complete squares.

Area of 1 small square = 1 sq cm

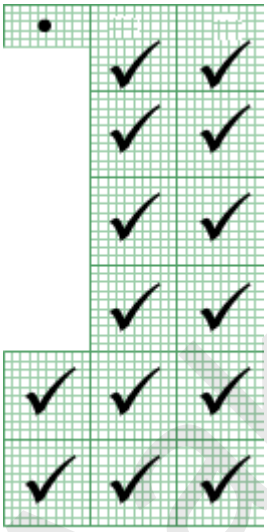
∴ Area of the figure = Number of complete squares ×× Area of the square

=(18×1) sq cm(18×1) sq cm

=18 sq cm

Page No 226:

ANSWER:



The figure contains 14 complete squares and 1 half square.

Area of 1 small square = 1 sq cm

∴ Area of the figure = Number of squares ×× Area of the square

=[(14 × 1) + (1 × 12)]sq cm(14 × 1) + (1 × 12)sq cm

=14121412 sq cm

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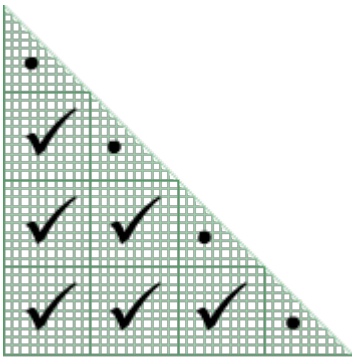
ANSWER:



The figure contains 6 complete squares and 4 half squares.

Area of 1 small square = 1 sq cm

∴ Area of the figure = Number of squares ×× Area of the square

=[(6×1)+(4×12)] sq cm(6×1)+(4×12) sq cm

=8 sq cm

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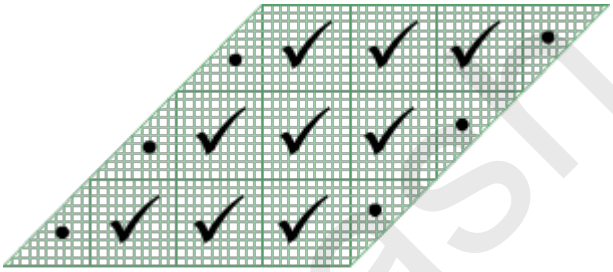
ANSWER:



The figure contains 9 complete squares and 6 half squares.

Area of 1 small square = 1 sq cm

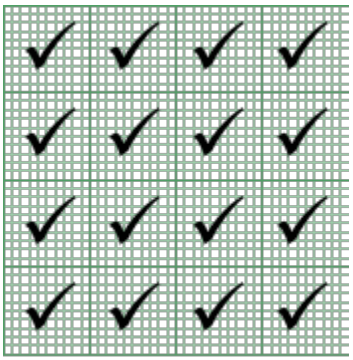
∴ Area of the figure = Number of squares ×× Area of the square

=[(9 × 1) + (6 × 12)] sq cm(9 × 1) + (6 × 12) sq cm

=12 sq cm

Page No 226:

ANSWER:



The figure contains 16 complete squares.

Area of 1 small square = 1 sq cm

∴ Area of the figure = Number of squares ×× Area of a square

=(16×1) sq cm(16×1) sq cm

=16 sq cm

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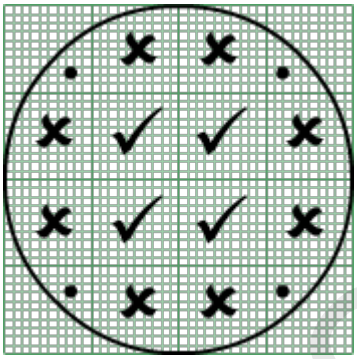
ANSWER:



In the given figure, there are 4 complete squares, 8 more than half parts of squares and 4 less than half parts of squares.

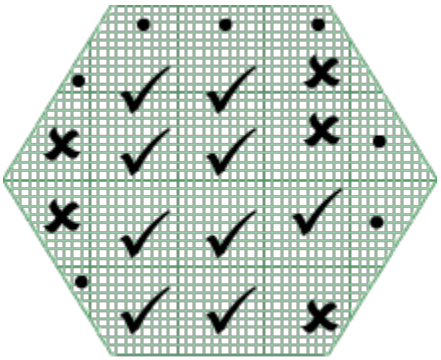
We neglect the less than half parts and consider each more than half part of the square as a complete square.

∴ Area = (4 + 8) sq cm

= 12 sq cm

Page No 226:

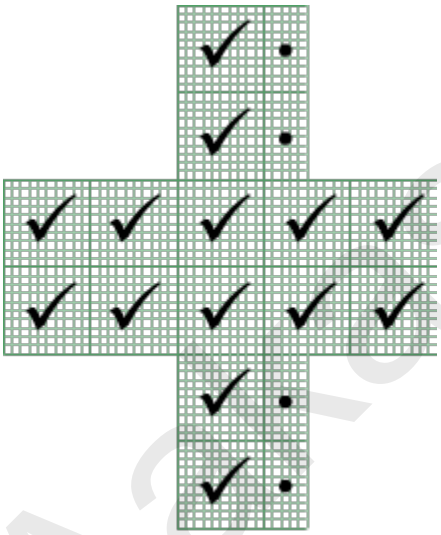
ANSWER:



In the given figure, there are 9 complete squares, 5 more than half parts of squares and 7 less than half parts of squares.
We neglect the less than half parts of squares and consider the more than half squares as complete squares.
∴ Area of the figure = (9 + 5) sq cm
= 14 sq cm

Page No 226:

ANSWER:



The figure contains 14 complete squares and 4 half squares.
Area of 1 small square = 1 sq cm
Area of the figure = Number of squares ×× Area of one square
=[(14×1)+(4×12)]sq cm(14×1)+(4×12) sq cm
=16 sq cm

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ANSWER:

(i) Length = 46 cm
Breadth = 25 cm
Area of the rectangle = (Length ××Breadth) sq units
= (46××25) cm^2 = 1150 cm^2

(ii) Length = 9 m
Breadth = 6 m
Area of the rectangle = (Length ××Breadth) sq units
= (9××6) m^2 = 54 m^2

(iii) Length = 14.5 m
Breadth = 6.8 m
Area of the rectangle = (Length ××Breadth) sq units
= (14510×6810 14510×6810) m^2 = 9860100 9860100 m^2 =98.60 m^2

(iv) Length = 2 m 5 cm
= (200+5) cm (1 m = 100 cm)
=205cm
Breadth = 60 cm
Area of the rectangle = (Length ××Breadth) sq units
= (205××60) cm^2 = 12300 cm^2

(v) Length = 3.5 km
Breadth = 2 km
Area of the rectangle = (Length ××Breadth) sq units
= (3.5××2) km^2 = (3510×2)(3510×2) km^2 =7 km^2

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ANSWER:

Side of the square plot = 14 m
Area of the square plot = $(Side)^2$ sq units
= $(14)^2$ m^2
= 196 m^2

Page No 230:

ANSWER:

Length of the table = 2 m 25 cm
= (2 + 0.25) m (100 cm = 1 m)
= 2.25 m
Breadth of the table = 1 m 20 cm
= (1 + 0.20) m (100 cm = 1 m)
=1.20 m
Area of the table = (Length × Breadth) sq units
= (2.25 × 1.20) m^2

= (225100×120100)(225100×120100) m^2
= 2.7 m^2

Page No 230:

ANSWER:

Length of the carpet = 30 m 75 cm
=(30 + 0.75) cm (100 cm = 1 m)
= 30.75 m
Breadth of the carpet = 80 cm
= 0.80 m (100 cm = 1 m)

Area of carpet = (Length ×× breadth) sq units

=(30.75 × 0.80) m2= (3075100×80100) m2=24.6 m2=(30.75 × 0.80) m2= (3075100×80100) m2=24.6 m2

Cost of 1 m^2 carpet= Rs 150
Cost of 24.6 m^2 carpet = Rs (24.6××150)
= Rs 3690

Page No 230:

ANSWER:

Length of the sheet of paper = 3 m 24 cm = 324 cm
Breadth of the sheet of paper = 1 m 72 cm = 172 cm

Area of the sheet = (Length ×× Breadth)

$=(324\times172)\ cm^2 = 55728\ cm^2$=(324×172) cm2 =55728 cm2

Length of the piece of paper required to make 1 envelope = 18 cm
Breadth of the piece of paper required to make 1 envelope = 12 cm
Area of the piece of paper required to make 1 envelope = $(18\times\times12)\ cm^2$

$= 216\ cm^2$

No. of envelopes that can be made =Area of the sheetArea of the piece of paper required to make 1 envelope⇒No. of envelopes that can be made =55728216=258 envelopesNo. of envelopes that can be made =Area of the sheetArea of the piece of paper required to make 1 envelope⇒No. of envelopes that can be made =55728216=258 envelopes

Page No 230:

ANSWER:

Length of the room = 12.5 m
Breadth of the room = 8 m
Area of the room = (Length××Breadth)

$=(12.5\times8)\ m^2 = 100\ m^2$=(12.5×8) m2 = 100 m2

Side of the square carpet = 8 m
Area of the carpet = $(Side)^2$

$= 8^2\ m^2$

$= 64\ m^2$

Area of the floor which is not carpeted = Area of the room − Area of the carpet

$= (100 - 64)\ m^2$

$= 36\ m^2$

Page No 230:

ANSWER:

Length of the road = 150 m = 15000 cm
Breadth of the road = 9 m = 900 cm
Area of the road = (Length××Breadth)

$=15000\times900\ cm^2=13500000\ cm^2$=15000×900 cm2=13500000 cm2

Length of the brick = 22.5 cm
Breadth of the brick = 7.5 cm
Area of one brick = (Length××Breadth)

$=(22.5\times7.5)\ cm^2=168.75\ cm^2$=(22.5×7.5) cm2=168.75 cm2

Number of bricks = Area of the roadArea of one brick=13500000168.75=80000 bricksNumber of bric
ks = Area of the roadArea of one brick=13500000168.75=80000 bricks

Page No 230:

ANSWER:

Length of the room = 13 m
Breadth of the room = 9 m
Area of the room = (13××9) m^2 = 117 m^2

Let length of required carpet be *x* m.
Breadth of the carpet = 75 cm
= 0.75 m (100 cm = 1 m)
Area of the carpet = (0.75××*x*) m^2
= 0.75x m^2
For carpeting the room:
Area covered by the carpet = Area of the room
⇒0.75x=117⇒x=1170.75⇒x=117×43⇒x=156 m⇒0.75x=117⇒x=1170.75⇒x=117×43⇒
x=156 m

So, the length of the carpet is 156 m.
Cost of 1 m carpet = Rs 65
Cost 156 m carpet = Rs (156××65)
= Rs 10140

Page No 230:

ANSWER:

Let the length of the rectangular park be 5*x*.
∴ Breadth of the rectangular park = 3*x*
Perimeter of the rectangular field = 2(Length + Breadth)
=2(5*x* + 3*x*)
= 16*x*

It is given that the perimeter of rectangular park is 128 m.
⇒16x=128⇒x=12816⇒x=8 Length of the park=(5×8) m =40
mBreadth of the park=(3×8) m =24 m⇒16x=128⇒x=12816⇒x=8
Length of the park=(5×8) m =40 mBreadth of the park=(3×8) m
=24 m

Area of the park = (Length ×× Breadth) sq units

=(40×24) m2=960 m2=(40×24) m2=960 m2

Page No 230:

ANSWER:

Side of the square plot = 64 m
Perimeter of the square plot
= (4×Side) m =(4×64) m=256 m(4×Side) m =(4×64) m=256 m
Area of the square plot = $(\text{Side})^2$
= 64^2 m^2
= 4096 m^2

Let the breadth of the rectangular plot be *x* m.
Perimeter of the rectangular plot = 2(l+b) m
= 2(70+*x*) m

Perimeter of the rectangular plot = Perimeter of the square plot (Given)
⇒2(70+x)=256⇒140+2x=256⇒2x=256−140⇒2x=116⇒x=1162=58⇒2(70+x)=256⇒140+2x=256⇒2x=256-140⇒2x=116⇒x=1162=58
So, the breadth of the rectangular plot is **58 m**.
Area of the rectangular plot
= (Length × Breadth)=(70 × 58) m2=4060 m2(Length × Breadth)=(70 × 58) m2=4060 m2
Area of the square plot − Area of the rectangular plot
= (4096 − 4060)
= **36 m^2**
Area of the square plot is 36 m^2 greater than the rectangular plot.

Page No 230:

ANSWER:

Total cost of cultivating the field = Rs 71400
Rate of cultivating the field = Rs 35/m^2

Area of the field=Total cost of cultivating the fieldRate of cultivating=Rs 71400Rs 35/m2=2040 m2Area of the field=Total cost of cultivating the fieldRate of cultivating=Rs 71400Rs 35/m2=2040 m2

Let the length of the field be *x* m.

Area of the field = (Length × Width) m2=(x × 40) m2 =40x m2It is given that the area

of the field is 2040 m2.⇒40x=2040⇒x=204040=51∴Length of the field = 51 m Area of t he field = (Length × Width) m2=(x × 40) m2 =40x m2It is given that the area of the field is 20 40 m2.⇒40x=2040⇒x=204040=51∴Length of the field = 51 m

Perimeter of the field = 2(l+b)
= 2(51+40) m
= 182 m
Cost of fencing 1 m of the field = Rs 50
Cost of fencing 182 m of the field = Rs (182××50)
= Rs 9100

Page No 230:

ANSWER:

Let the width of the rectangle be *x* cm.
Length of the rectangle = 36 cm
Area of the rectangle = (Length × WidthLength × Width) = (36 × x36 × x) cm^2
It is given that the area of the rectangle is 540 cm^2.

⇒36 × x= 540⇒x=54036⇒x=15∴ Width of the rectangle =15 cm⇒36 × x= 540⇒x=5403 6⇒x=15∴ Width of the rectangle =15 cm

Perimeter of the rectangle = 2(Length + Width) cm
= 2(36 + 15) cm
= 102 cm

Page No 230:

ANSWER:

Length of the wall = 4 m = 400 cm
Breadth of the wall = 3 m = 300 cm
Area of the wall = (400×300) cm^2 = 120000 cm^2

Length of the tile = 12 cm
Breadth of the tile = 10 cm
Area of one tile = (12×10) cm^2 = (120) cm^2

Number of tiles required to cover the wall=Area of the wallArea of one tile=120000120=1000 tiles
Number of tiles required to cover the wall=Area of the wallArea of one tile=120000120=100 0 tiles
Cost of 1 tile = Rs 22.50

Cost of 1000 tiles = (1000 × 22.50) = Rs 22500

Thus, the total cost of the tiles is Rs 22500.

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ANSWER:

Let the length of the rectangle be *x* cm.
Breadth of the rectangle is 25 cm.
Area of the rectangle = (Length × Breadth) cm^2
= (x×25) cm^2
=25x cm^2

It is given that the area of the rectangle is 600 cm^2.
⇒25x=600⇒x=60025=24⇒25x=600⇒x=60025=24
So, the length of the rectangle is 24 cm.
Perimeter of the rectangle = 2(Length + Breadth) units
= 2(25 + 24) cm
= 98 cm

Page No 230:

ANSWER:

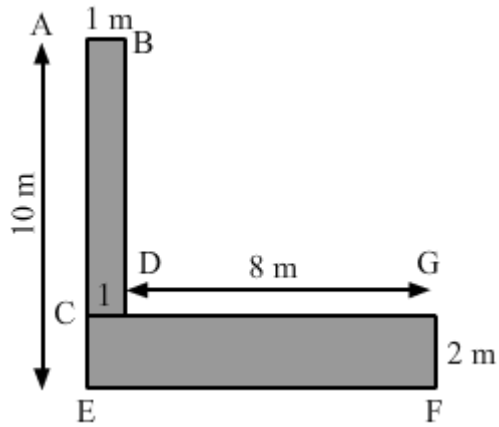
Area of the square ={12× (Diagonal)2} sq units 12× (Diagonal)2 sq units
= {12×(52–√)2} cm2={12×(5)2×(2–√)2} cm2={12×25×2} cm2=(12×50) cm2= 25 cm2 = 12×(52)2 cm2=12×(5)2×(2)2 cm2=12×25×2 cm2=(12×50) cm2= 25 cm2

Page No 230:

ANSWER:

(i) Area of rectangle ABDC = Length ×× Breadth
= AB××AC (AC = AE − CE)
= (1×8)m21×8m2
= 8 m^2
Area of rectangle CEFG = Length ×× Breadth
= CG××GF (CG = GD + CD)
= (9×2)m29×2m2
= 18 m^2
Area of the complete figure = Area of rectangle ABDC + Area of rectangle CEFG

= (8 + 18) m^2
= 26 m^2

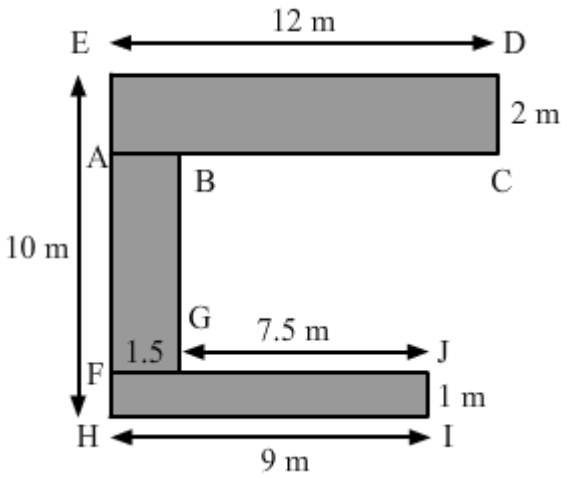


(ii) Area of rectangle AEDC = Length ×× Breadth
= ED ×× CD
= $(12\times2)m^2$12×2m2
= 24 cm^2

Area of rectangle FJIH = Length ×× Breadth
= HI ×× IJ
= $(1\times9)m^2$1×9m2
= 9 m^2

Area of rectangle ABGF = Length ×× Breadth
= AB ×× AF {(AB = FJ − GJ) and AF = EH − (EA + FH)}
= $(7\times1.5)m^2$7×1.5m2
= 10.5 m^2

Area of the complete figure = Area of rectangle AEDC + Area of rectangle FJIH + Area of rectangle ABGF
= (24 + 9 + 10.5) m^2
= 43.5 m^2



(iii) Area of the shaded portion = Area of the complete figure − Area of the unshaded figure

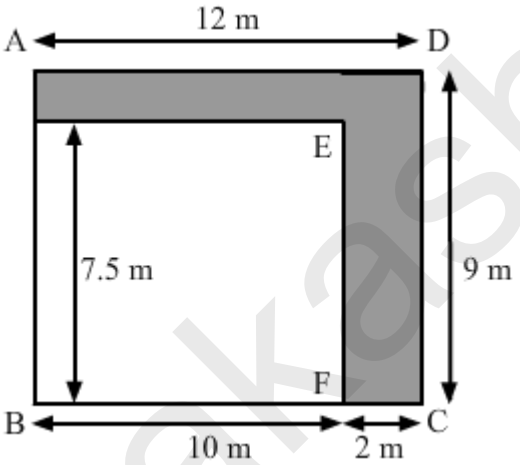
= Area of rectangle ABCD − Area of rectangle GBFE

=(CD××AD) − (GB××BF)

=$\{(12\times9)-(7.5\times10)\}m^2$(12×9)-(7.5×10)m2 (BF = BC − FC)

=(108 − 75) m^2

=33 m^2



Page No 231:

ANSWER:

(i) Area of square BCDE= $(Side)^2$

= $(CD)^2$

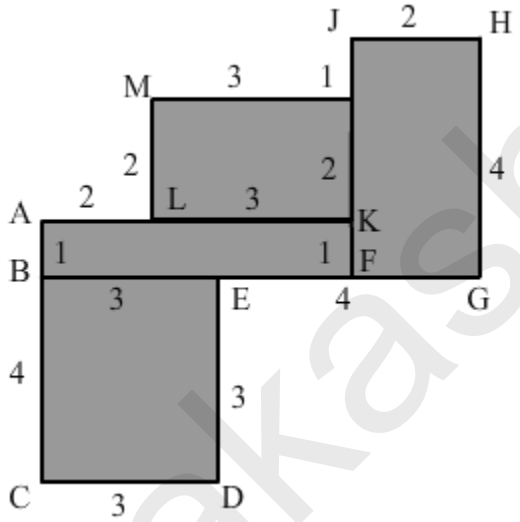
$= (3)^2$ cm^2
$= 9$ cm^2

Area of rectangle ABFK = Length × BreadthLength × Breadth
= AK××AB [(AB = AC − BC) and (AK = AL + LK)
= (5××1) cm^2
= 5 cm^2

Area of rectangle MLKG = Length × BreadthLength × Breadth
= ML ×× MG
= (2 ×× 3) cm^2
= 6 cm^2

Area of rectangle JHGF= Length × BreadthLength × Breadth
= JH××HG
= (2××4) cm^2
= 8 cm^2

Area of the figure = Area of rectangle ABFK + Area of rectangle MLKG + Area of rectangle JHGF + Area of square BCDE
= (9 + 5 + 6 + 8) cm^2
= 28 cm^2



(ii) Area of rectangle CEFG= Length × BreadthLength × Breadth
= EF××CE
= (1××5) cm^2 (CE = EA − AC)
= 5 cm^2

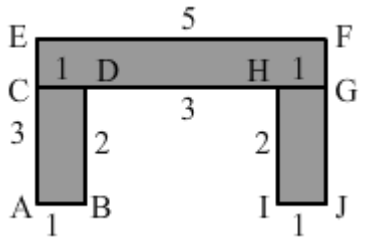
Area of rectangle ABDC = Length × BreadthLength × Breadth
= AB××BD
= (1××2) cm^2
= 2 cm^2

Area of rectangle HIJG = Length × BreadthLength × Breadth

= HI ×× IJ
= (1××2) cm^2
= 2 cm^2

Area of the figure = Area of rectangle CEFG + Area of rectangle HIJG + Area of rectangle ABDC

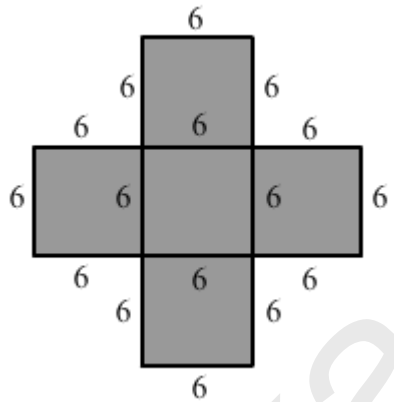
= (5+2+2) cm^2
= 9 cm^2



(iii) In the figure, there are 5 squares, each of whose sides are 6 cm in length.

Area of the figure = 5 ×× Area of square

= 5××(side)^2
= 5××(6)^2 cm^2
= 180 cm^2



Page No 231:

ANSWER:

(b) 28 cm

Let the length and the breadth of the rectangle be 7*x* cm and 5*x* cm, respectively.
It is given that the perimeter of the rectangle is 96 cm.
Perimeter of the rectangle = 2(7*x*+5*x*) cm

⇒2(7x+5x)=96=2(12x)=96=24x=96⇒x=9624=4∴ Length =(7×4)cm=28 cm⇒2(7x+5x)=96=2(12x)=96=24x=96⇒x=9624=4∴ Length =(7×4)cm=28 cm

Page No 231:

ANSWER:

(d) 126 cm
Let length of the rectangle be L cm.
Area of the rectangle = 650 cm^2
Area of the rectangle = (L×13L×13) cm^2
⇒(L×13)=650⇒L=65013=50 Length of the rectangle is 50 cm⇒(L×13)=650⇒L=65013=50 Length of the rectangle is 50 cm

Perimeter of the rectangle = 2(Length + Breadth) cm = 2(50+13) cm = 126 cm

Page No 231:

ANSWER:

(b) Rs 2340
Perimeter of the rectangular field = 2(Length + Breadth)
= 2(34 + 18) m = 104 m
Cost of fencing 1 metre = Rs 22.50
Cost of fencing 104 m = Rs (22.50××104) = Rs 2340

Page No 231:

ANSWER:

(b) 16 m
Total cost of fencing = Rs 2400
Rate of fencing = Rs 30/m
Perimeter of the rectangular field
= Total costRate=Rs 2400Rs 30/m=80 mTotal costRate=Rs 2400Rs 30/m=80 m
Let the breadth of the rectangular field be *x* m.
Perimeter of the rectangular field = 2(24 + *x*) m
⇒2(24+x)=80⇒48+2x=80⇒2x=(80−48)⇒2x=32⇒x=322=16So, the breadth of the rectangular field is 16 m.⇒2(24+x)=80⇒48+2x=80⇒2x=(80-48)⇒2x=32⇒x=322=16So, the breadth of the rectangular field is 16 m.

Page No 231:

ANSWER:

(c) 17 m
Let the length and the breadth of the rectangle be *L* m and B m, respectively.

Area of the rectangular carpet = (L×BL×B) m2
⇒LB=120 ... (i)⇒LB=120 ... (i)
Perimeter of the rectangular carpet = 2(L+B)2(L+B)
⇒2(L+B)=46⇒(L+B)=462⇒(L+B)=23 ...(ii)⇒2(L+B)=46⇒(L+B)=462⇒(L+B)=23 ...(ii)

Diagonal of the rectangle
= L2+B2−−−−−−−√ m =(L+B)2−2LB−−−−−−−−−−−−−−√ m
=(23)2−240−−−−−−−−−−√ m (from equations (i) and (ii)) =529−240−−−−−−−−−√ m =289−−−√ m=17 mDiagonal of the rectangle = L2+B2 m =(L+B)2-2LB m =(23)2-240 m (from equations (i) and (ii)) =529-240 m =289 m=17 m

Page No 231:

ANSWER:

(a) 48 cm
Let the width and the length of the rectangle be *x* cm and 3*x* cm, respectively.

Applying Pythagoras theorem:

(Diagonal)2=(Length)2+(Width)2⇒(610−−√)2=(3x)2+(x)2⇒360=9x2+x2⇒360=10x2⇒x2=36010⇒x2=36⇒x=±6Since the width cannot be negative, we will neglect −6.(Diagonal)2=(Length)2+(Width)2⇒(610)2=(3x)2+(x)2⇒360=9x2+x2⇒360=10x2⇒x2=36010⇒x2=36⇒x=±6Since the width cannot be negative, we will neglect -6.

So, width of the rectangle is 6 cm.
Length of the rectangle = (3×6)=18 cm3×6=18 cm
Perimeter of the rectangle = 2(Length + Breadth) = 2(18 + 6) = 48 cm

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ANSWER:

(b) 2 : 1
Let the breadth of the plot be *b* cm.

Let the length of the plot be *x* cm.
Perimeter of the plot = 3*x* cm

Perimeter of the plot =2(Length + Breadth)= 2(*x* + *b*) cm
⇒2(x+b)=3x2x+2b=3x⇒2b=3x−2x⇒2b=x⇒b=x2∴Ratio of the length and the breadth of the plot =x(x2)=xx × 2 = 21∴Ratio of the length and the breadth of the plot =2:1⇒2(x+b)=3x2x+2b=3x⇒2b=3x-2x⇒2b=x⇒b=x2∴Ratio of the length and the breadth of the plot =x(x2)=xx × 2 = 21∴Ratio of the length and the breadth of the plot =2:1

Page No 232:

ANSWER:

(b) 200 cm^2
Area of the square = {12×(Diagonal)2 } sq units12×(Diagonal)2 sq units
={12×(20)2 } cm2={12×(20)×(20)} cm2=(20×10) cm2=200 cm2=12×(20)2 cm2=12×(20)×(20) cm2=(20×10) cm2=200 cm2

Page No 232:

ANSWER:

(c) 20 m
Let one side of the square field be *x* m.
Total cost of fencing a square field = Rs 2000
Rate of fencing the field = Rs 25/m

Perimeter of the square field=Total cost of fencing the fieldRate of fencing the field=Rs 2000Rs 25/m=2000 25 m=80 mPerimeter of the square field=Total cost of fencing the fieldRate of fencing the field=Rs 2000Rs 25/m=200025 m=80 m

Perimeter of the square field = (4×side4×side) = 4*x* m
⇒4x=80⇒x=804⇒x=20Each side of the field is 20 m.⇒4x=80⇒x=804⇒x=20Each side of the field is 20 m.

Page No 232:

ANSWER:

(b) 22 cm
Radius=Diameter 2=72 cmCircumference of the circle=2πr=(2×227×72) cm=22 cmRadius= Diameter 2=72 cmCircumference of the circle=2πr=(2×227×72) cm=22 cm

Page No 232:

ANSWER:

(a) 28 cm
Circumference of the circle is 88 cm.Let the radius be r cm.It is given that the circumf erence of the circle is (2πr) cm.⇒2πr=88⇒2×227×r=88⇒r=12×722×88⇒r=14∴ Radius= 14 cmDiameter=(2× Radius)=(2 × 14) cm =28 cmCircumference of the circle is 88 cm.L et the radius be r cm.It is given that the circumference of the circle is (2πr) cm.⇒2πr=88⇒2 ×227×r=88⇒r=12×722×88⇒r=14∴ Radius=14 cmDiameter=(2× Radius)=(2 × 14) cm =28 c m

Page No 232:

ANSWER:

(b) 110 m
Radius of the wheel=Diameter2=702=35 cmCircumference of the wheel =2πr=(2×227×35) cm =220 cmThe distance covered by the wheel in one revolution is equal to its circum ference.Distance covered by the wheel in 1 revolution = 220 cm∴Distance covered by the wheel in 50 revolution = (50 × 220)cm=11000 cm=110 mRadius of the wheel=Diam eter2=702=35 cmCircumference of the wheel =2πr=(2×227×35) cm =220 cmThe distance c overed by the wheel in one revolution is equal to its circumference.Distance covered by the wheel in 1 revolution = 220 cm∴Distance covered by the wheel in 50 revolution = (50 × 220) cm=11000 cm=110 m

Page No 232:

ANSWER:

(d) 80000
Length of the road = 150 m = 15000 cm
Breadth of the road = 9 m = 900 cm
Area of the road = (Length × Breadth)
= (15000 × 900) cm^2
= 13500000 cm^2

Length of the brick = 22.5 cm
Breadth of the brick = 7.5 cm

Area of one brick = (Length × Breadth)
= (22.5 × 7.5) cm^2
= 168.75 cm^2

Number of bricks = Area of the roadArea of one brick =13500000 cm2168.75 cm2=80000 bricksNumber of bricks = Area of the roadArea of one brick =13500000 cm2168.75 cm2=80000 bricks

Page No 232:

ANSWER:

(b) 24.3 m^2

Length of the room = 5 m 40 cm = 5.40 m
Breadth of the room = 4 m 50 cm = 4.50 m

Area of the room = (Length × Breadth)=(5.40 × 4.50) m2=(540100×450100)m2=(275×92)m2=24310m2=24.3 m2Area of the room = (Length × Breadth)=(5.40 × 4.50) m2=540100×450100m2=275×92m2=24310m2=24.3 m2

Page No 232:

ANSWER:

(d) 16

Length of the sheet of paper = 72 cm
Breadth of the sheet of paper = 48 cm
Area of the sheet = (Length × Breadth)
⇒ (72 × 48) cm^2 = 3456 cm^2

Length of the piece of paper required to make 1 envelope = 18 cm
Breadth of the piece of paper required to make 1 envelope = 12 cm
Area of the piece of paper required to make 1 envelope = (18 × 12) cm^2
= 216 cm^2

No. of envelopes that can be made = Area of the sheetArea of the piece of paper required to make 1 envelope⇒No. of envelopes that can be made =3456216=16 envelopesNo. of envelopes that can be made = Area of the sheetArea of the piece of paper required to make 1 envelope⇒No. of envelopes that can be made =3456216=16 envelopes

Page No 233:

ANSWER:

(i) Sides of the triangle are 5.4 cm, 4.6 cm and 6.8 cm.
Perimeter of the triangle = (First side + Second side + Third Side)
= (5.4 + 4.6 + 6.8) cm = 16.8 cm

(ii) Length of each side of the given hexagon = 8 cm
∴ Perimeter of the hexagon = (6 × 8) cm = 48 cm

(iii) Length of the two equal sides = 6 cm
Length of the third side = 4.5 cm
∴ Perimeter of the triangle = {(2 × equal sides) + third side} cm = (2 × 6) + 4.5 = 16.5 cm

Page No 233:

ANSWER:

Let the length of the rectangle be x m.
Breadth of the rectangle = 75 m
Perimeter of the rectangle = 2(Length + Breadth)
= 2(x + 75) m = (2x + 150) m
It is given that the perimeter of the field is 360 m.
⇒2x+150=360⇒2x=360−150⇒2x=210⇒x=2102=105 ⇒2x+150=360⇒2x=360-150⇒2x=210⇒x=2102=105
So, the length of the rectangle is 105 m.

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ANSWER:

Let the length of the rectangle be 5x m.
Breadth of the rectangle = 4x m
Perimeter of the rectangle = 2(Length + Breadth)
= 2(5x + 4x) m = 18x m
It is given that the perimeter of the field is 108 m.
∴ 18 x = 108
⇒ x = 10818=610818=6
∴ Length of the field = (5 × 6)m = 30 m
Breadth of the field = (4 × 6)m = 24 m

Page No 233:

ANSWER:

Let one side of the square be *x* cm.
Perimeter of the square = (4×side)=(4×x) cm =4x cm(4×side)=(4×x) cm =4x cm
It is given that the perimeter of the square is 84 cm.
⇒4x=84⇒x=844=21Thus, one side of the square is 21 cm.Area of the square = (Side)2 =(21)2 cm2= 441cm2⇒4x=84⇒x=844=21Thus, one side of the square is 21 cm.Area of th e square = (Side)2=(21)2 cm2= 441cm2

Page No 233:

ANSWER:

Let the length of the room be *x* m.
Breadth of the room = 12 m
Area of the room = (Length × Breadth) = (x × 12) m^2
It is given that the area of the room is 216 m^2.
⇒ x × 12 = 216
⇒ x = 21612=1821612=18
∴ Length of the rectangle = 18 m

Page No 233:

ANSWER:

Radius(r) of the given circle = 7 cm
Circumference of the circle, C = 2 πr
= (2×227×7) cm= 44 cm= 2×227×7 cm= 44 cm
Hence, the circumference of the given circle is 44 cm.

Page No 233:

ANSWER:

Radius of the wheel =Diameter of the wheel2Diameter of the wheel2
⇒ r = 772772cm
Circumference of the wheel = 2 πr
= (2×227×772)2×227×772 cm
= 242 cm

In 1 revolution, the wheel covers a distance equal to its circumference.
∴ Distance covered by the wheel in 1 revolution = 242 cm
∴ Distance covered by the wheel in 500 revolutions = (500 × 242) cm

= 121000 cm (100 cm =1 m)
= 1210 m

Page No 233:

ANSWER:

Let the radius be r cm.
Diameter = 2 × Radius(r) = 2r cm
Circumference of the wheel = $2\pi r$
$\therefore 2\pi r = 176$
$\Rightarrow 2r = 176\pi \Rightarrow 2r = 176 \times 722 = 56 \Rightarrow 2r = 176\pi \Rightarrow 2r = 176 \times 722 = 56$
$\Rightarrow 2r = 56$
Thus, the diameter of the given wheel is 56 cm.

Page No 233:

ANSWER:

Length of the rectangle = 36 cm
Breadth of the rectangle = 15 cm
Area of the rectangle = (Length × Breadth) sq units
= (36 × 15) cm^2 = 540 cm^2

Page No 233:

ANSWER:

(b) 64 cm
Side of the square = 16 cm
Perimeter of the square = (4 × side)
= (4 × 16) cm
= 64 cm

Page No 233:

ANSWER:

(a) 15 m

Let the breadth of the rectangle be x m.
Length of the rectangle = 16 m
Area of rectangle = (Length × Breadth) = (16 × x) m^2

It is given that the area of the rectangle is 240 m^2.
$\Rightarrow 16 \times x = 240$
$\Rightarrow x = \frac{240}{16} = 15$
So, the breadth of the rectangle is 15 m.

Page No 233:

ANSWER:

(b) 225 m^2

Side of the square lawn = 15 mArea of the square lawn = $(\text{Side})^2$ sq units=$(15)^2$ m^2=225 m^2Side of the square lawn = 15 mArea of the square lawn = (Side)2 sq units=(15)2 m2= 225 m2

Page No 233:

ANSWER:

(a) 16 cm
Let one side of the square be x cm.
Area of the square = $(\text{Side})^2$ cm^2 = x^2 cm^2
It is given that the area of the square is 256 cm^2.
$\Rightarrow x^2 = 256$
$\Rightarrow x = \sqrt{256} = \pm 16$
We know that the side of a square cannot be negative.
So, we will neglect −16.
Therefore, the side of the square is 16 cm.

Perimeter of the square = $(4 \times \text{side}) = (4 \times 16)\text{cm} = 64$ cm4×side=4×16cm=64 cm

Page No 233:

ANSWER:

(b) 10.5 m
Let the breadth of the rectangle be x m.
Length of the rectangle = 12 m
Area of the rectangle = 126 m^2
Area of the rectangle
= $(\text{length} \times \text{breadth})$sq units=$(12 \times x)m^2 = 12x$ m^2length×breadthsq units=(12×x)m2=12x m2
It is given that the area of the rectangle is 126 m^2.

⇒12x=126⇒x=12612=10.5So, the breadth of the rectangle is 10.5 m.⇒12x=126⇒x=126 12=10.5So, the breadth of the rectangle is 10.5 m.

Page No 233:

ANSWER:

(i) A polygon having all sides equal and all angles equal is called a regular polygon
(ii) Perimeter of a square = 4 × side
(iii) Area of a rectangle = (length) × (breadth)
(iv) Area of a square = $(\text{side})^2$
(v) If the length of a rectangle is 5 m and its breadth is 4 m, then its area is 20 m^2
Area of a rectangle = (length) × (breadth) = (5×4) m^2 = 20 m^2

Page No 233:

ANSWER:

(a) Area of a rectangle	(iii) $l \times b$
(b) Area of a square	(iv) $(\text{side})^2$
(c) Perimeter of a rectangle	(v) $2(l + b)$
(d) Perimeter of a square	(ii) 4 × side
(e) Area of a circle	(i) πr^2