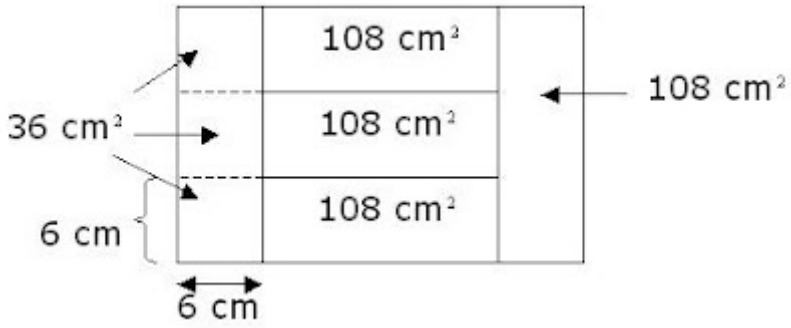


Length of rectangle is 3 times breadth rectangle, therefore, we can divide 1 rectangle into 3 equal parts as shown above.

The area of 1 square above ----- 108 square cm divided by 3 = 36 square cm

The side of this 1 unit square has to be 6 cm (6 x 6 = 36)

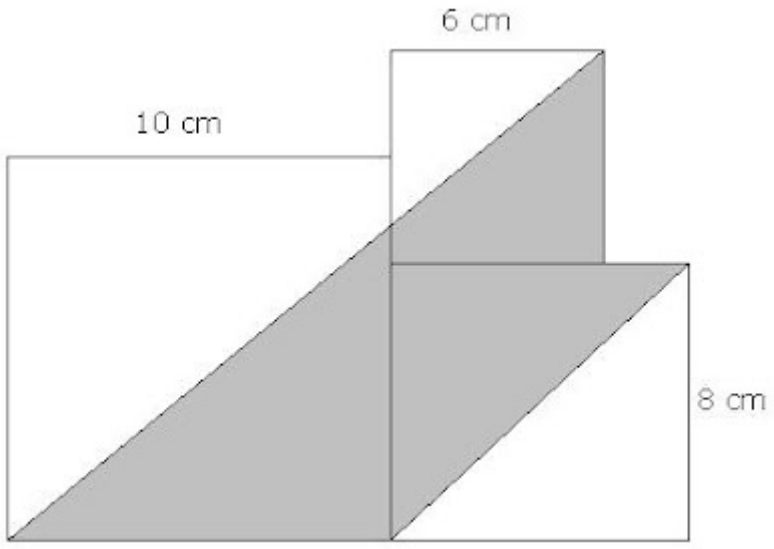
Since 1 side of the square is 6 cm, the length of 1 rectangle is -----
6 cm x 3 = 18 cm

The perimeter of 1 rectangle is therefore,

18 cm + 6 cm + 18 cm + 6 cm = 48 cm

Answer: The perimeter of one rectangle is 48 cm.

The diagram below is made up of 3 squares. Find the area of the shaded area.



Solution

Area of shaded area is

Area of triangle ADC – Area of triangle BGC + Area of triangle EFG

Area of triangle ADC
½ x 16cm x 14cm = 112 square cm

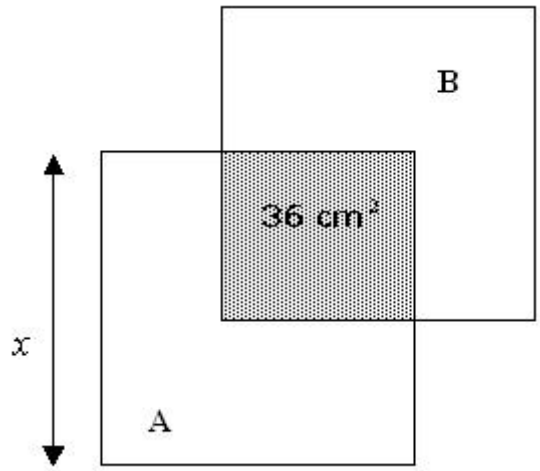
Area of triangle BGC
CG = 6 cm because EG = EF = 2 cm
Therefore area = ½ x 6cm x 6cm = 18 square cm

Area of triangle EFG
½ x 2cm x 2cm = 2 square cm

Therefore area of shaded area is
(112 – 18 + 2) square cm
= 96 square cm (Answer)

Two identical big squares A and B overlap to form a small square of area 36 square cm. The ratio of the shaded area to the unshaded area is 1 : 6. Find the length of x.

Solution



(Shaded Area) 1 unit ----- 36 square cm.
(Unshaded Area) 6 units ------ 36 square cm x 6 = 216 square cm.

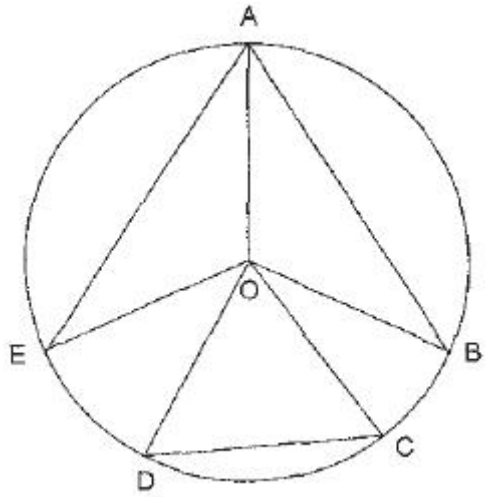
Area of 1 large square is
(216 square cm divided by 2) + 36 square cm
= 144 square cm.

Length of side of large square is

144 square cm = 12 cm x **12 cm**

Answer: The length of x is 12 cm.

In the figure below, O is the centre of the circle where OCD is an equilateral triangle. Given that Angle OAB = 20 degrees and Angle AOD = 127 degrees, find Angle BOC.



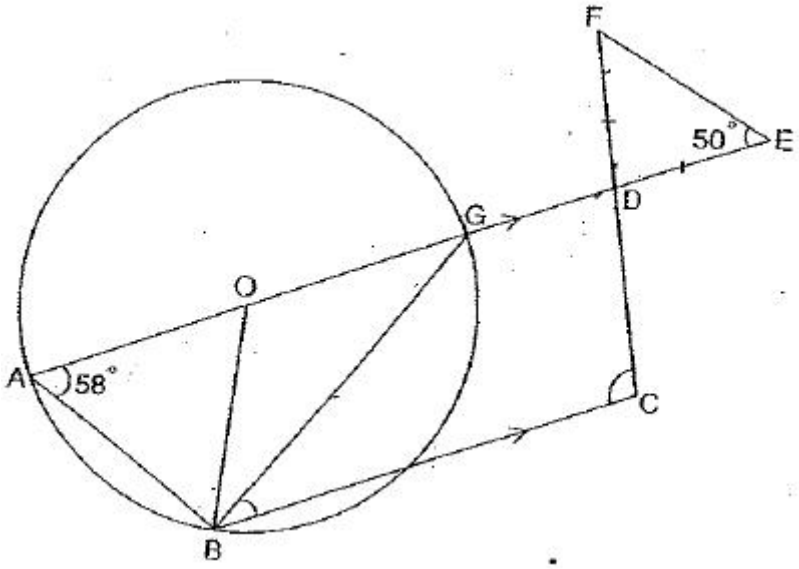
Solution

Angle DOC --> 60 degrees (Triangle OCD is equilateral)
Angle AOB --> (180 - 20 - 20) degrees
= 140 degrees (Triangle OAB is isosceles)

Angle BOC --> (360 - 140 - 127 - 60) degrees
= 33 degrees

Answer: 33 degrees

In the figure below, O is the centre of the circle and AE is parallel to BC. DF = DE, Angle OAB = 58 degrees and Angle FED = 50 degrees.



a) Find Angle GBC
b) Find Angle DCB

Solution

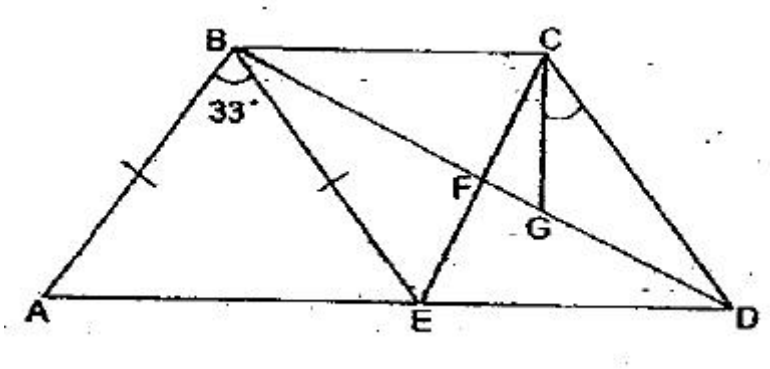
a)
Angle ABO = 58 deg (isosceles triangle)
Angle BOG = (58 + 58) deg = 116 deg (exterior angles)
Angle OGB = [(180 - 116) divided by 2] = 32 deg
Angle GBC = 32 deg (alternate angles)

Answer: 32 degrees

b)
Angle FDE = (180 - 50 - 50) deg = 80 deg
Angle FDE = Angle GDC = 80 deg
Angle DCB = (180 - 80) deg = 100 deg

Answer: 100 degrees

ABE is an isosceles triangle and BCDE is a rhombus. AED is a straight linie. Given that Angle ECG = 16 degrees, find Angle GCD.

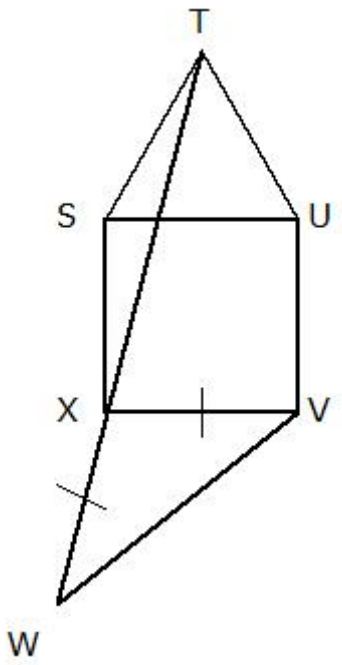


Solution

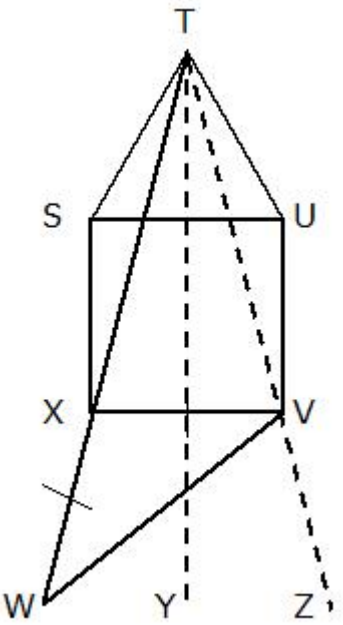
Ange BEA --> (180 - 33) divided by 2 = 73.5
Angle BED --> 180 - 73.5 = 106.5
Angle CED --> 106.5 divided by 2 = 53.25
Angle ECD = Angle CED = 53.5
Angle GCD = 53.25 - 16 = 37.25

Answer: 37.25 degrees

In the figure shown below, SUVX is a square. STU is an equilateral triangle and TXW is a straight line.
a) Find the value of Angle STX.
b) Find the value of Angle WVX.



Solution



a)
Line TZ passes through V, while line TY is passes through the centre of Line SU.
Angle STX is 1/4 of Angle STU.
Angle STU is 60 degrees (Triangle STU is equilateral)

Angle STX --> (1/4) x 60 degrees = 15 degrees

Answer: 15 degrees

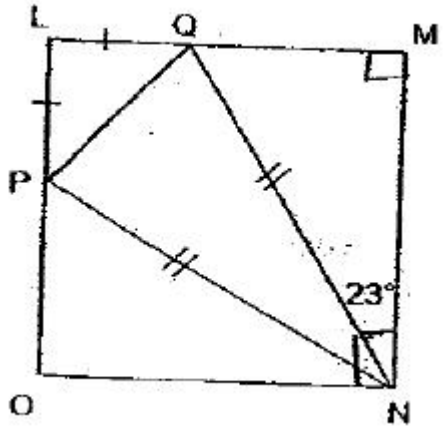
b)
Angle SXT = 15 degrees (Triangle STX is isosceles)
Angle TXV --> (90 - 15) degrees = 75 degrees
Angle WXV --> (180 - 75) degrees = 105 degrees

Angle WVX

--> (180 - 105) degrees divided by 2 = 37.5 degrees
(Triangle WVX is isosceles)

Answer: 37.5 degrees

LMNO is a square. PQN and PLQ are isosceles triangles. Angle QNM is 23 degrees. Find Angle NPQ.

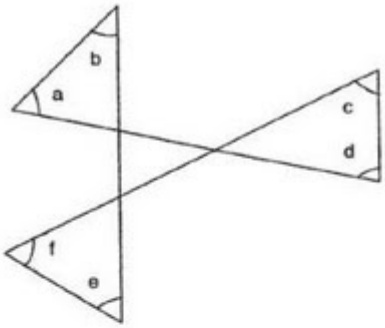


Solution

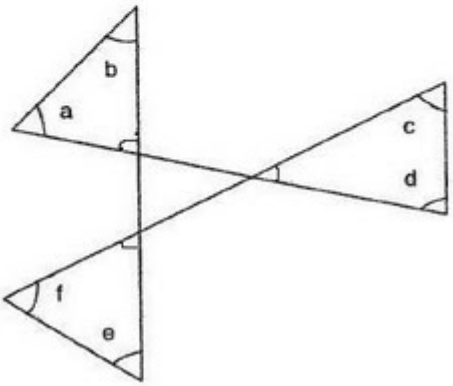
Angle PNO --> 23 deg (mirror image of Angle MNQ)
Angle OPN --> 90 deg - 23 deg = 67 deg
Angle LPQ --> 45 deg (Triangle LQP is isosceles and Angle LPQ is a rt angle)
Angle NPQ --> (180 - 45 - 67) deg = 68 deg

Answer: 68 degrees

Find the sum of the six marked angles in the diagram.



Solution



The sum of the all the angles in the triangle in the centre is 180 degrees. The sum of all the 3 angles outside the centre triangle, in the figure above is therefore also 180 degrees (opposite