Online Class – X – 18 **02 / 08 / 2021**

2 . Circles – Class 6

To view class

Assignment Answers

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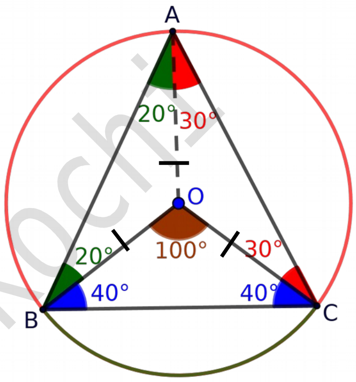
Q1)



a) Join OA

Since OA = OB & OC = OA ,

Δ OAB & Δ OAC are isosceles triangles

Given ∠ OBA = 20° , Given ∠ OCA = 30°

∴ ∠OAB = 20° ∴∠OAC = 30°

∠BAC = ∠OAB + ∠OAC

= 20° + 30° = 50°

∠BOC = 2 × 50° = 100°

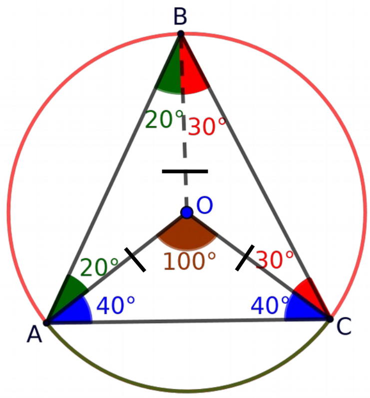
Since OB = OC , Δ OBC is an isosceles triangle.

$$\therefore \angle OBC = \angle OCB = \frac{180° - 100°}{2} = \frac{80°}{2} = 40°$$

Angles of Δ ABC are ∠A = 50° , ∠B = 60°, ∠C = 70°

Angles of Δ OBC are ∠OBC = 40°, ∠OCB = 40°, ∠BOC = 100°

b)



ΔOAC is an isosceles triangle.

Given ∠ OAC= 40°

∴ ∠OCA = 40°

∠AOC= 180° – 80° = 100°

$$\therefore \angle ABC = \frac{100°}{2} = 50°$$

Join OB, Δ OBC is an isosceles triangle

So ∠ OCB = ∠OBC = 30°

∴ ∠OBA = 50° – 30° = 20°

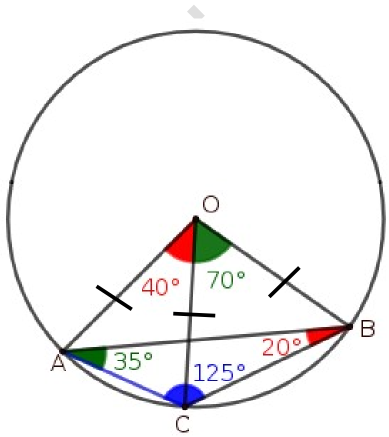
Δ OBA is an isosceles triangle , So ∠ OAB= 20°

Angles of Δ ABC are ∠ A = 60°, ∠B = 50°, ∠C = 70°

Angles of Δ OBC are ∠OBC = 30°, ∠OCA = 30°, ∠BOC = 180° – 60° =120°

c) Given ∠BOC = 70°

Δ OBC is an isosceles triangle



$$\angle OBC = \angle OCB = \frac{180° - 70°}{2} = \frac{110°}{2} = 55°$$

Angles of ΔOBC are ∠OBC = 55° , ∠BOC = 70°, ∠OCB = 55°

$$\text{Since } \angle AOC = 40°,\ \angle ABC = \frac{40°}{2} = 20°$$

$$\text{Since } \angle BOC = 70°,\ \angle BAC = \frac{70°}{2} = 35°$$

∠ACB = 180° – (20° + 35°) = 180° – 55° = 125°

Angles of ΔABC are 125°, 20°, 35°

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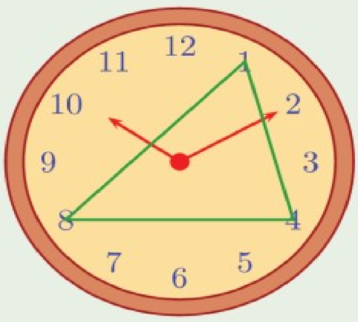
Q2)

The numbers 1, 4, 8 on a clock's face are joined to make a triangle.



Calculate the angles of this triangle.

How many equilateral triangles can we make by joining numbers on the clock's face?

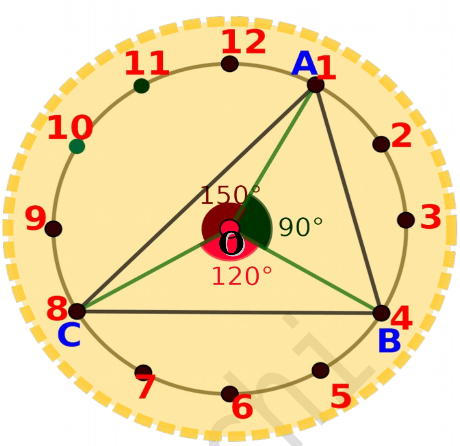
Ans)

a) In a clock's face

60 minute = 360^0

1 minute = $\frac{360°}{60°} = 6°$

5 minute = 30°



$\angle BOC = 4 \times 30° = 120°$

$\therefore \angle A = \frac{120°}{2} = 60°$

$\angle AOC = 5 \times 30° = 150°$

$\therefore \angle B = \frac{150°}{2} = 75°$

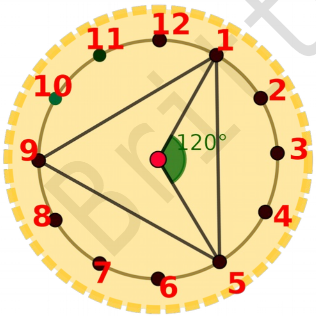
$\angle AOB = 3 \times 30° = 90°$

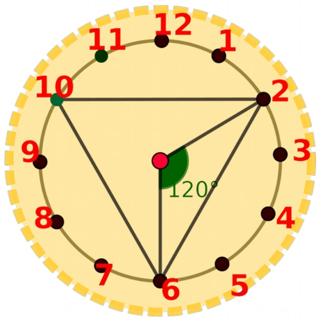
$\therefore \angle C = \frac{90°}{2} = 45°$

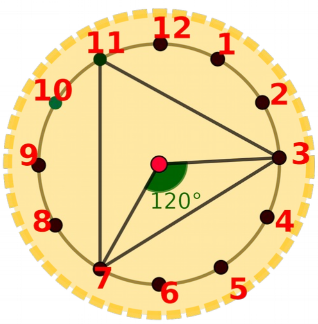
b)

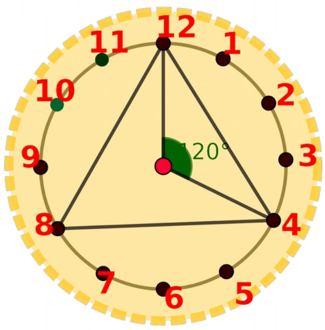
We can make 4 equilateral triangles by joining the numbers on the clock

(1 , 5, 9), (2, 6, 10), (3, 7, 11), (4, 8, 12)





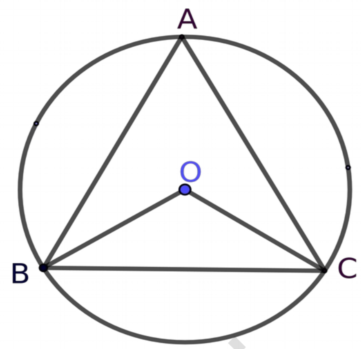




Assignment

Q) In the figure O is the centre of the circle and ABC is an equilateral triangle.

Find ∠BAC and ∠ABO.



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(5) In the picture, O is the centre of the circle and A, B, C, are points on it. Prove that $\angle OAC + \angle ABC = 90°$.