

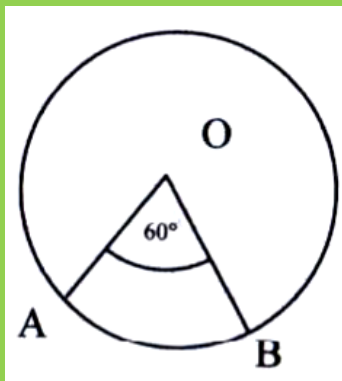
Work Sheet- 2
Class- Ten, Chapter- Eight
Exercise- 8.1
Trigonometry

Creative Multiplication Choice Question

1. What is the circular measure of the angle subtended by an arc of length 15 cm at the centre of a circle with radius 9 cm?
 [Dj.B.- 19]

- a) 0.60 radian (app.)
- b) 0.83 radian (app.)
- c) 1.67 radian (app.)
- d) 95.49 radian (app.)

2.



In the figure, centre of the circle is O and arc AB = 60 cm then what is the radius of the circle?
 [S.B.- 17]

- a) $\frac{\pi}{180}$ cm
- b) π cm
- c) $\frac{180}{\pi}$ cm
- d) 20π cm

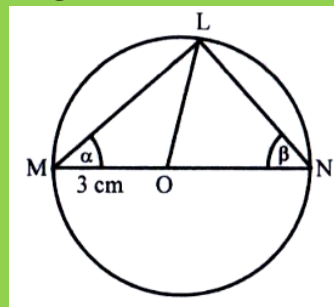
3. A wheel rotates 35 times to cover 250 metres. What is the radius?
 [B.B.- 19]

- a) 1.137 m (Nearly)
- b) 1.5 m (Nearly)
- c) 1.6 m (Nearly)
- d) 1.71 m (Nearly)

4. If we express an angle by P° and Q^c in radian and circular system then which one of the following relations is correct?
 [B.B.- 19]

- a) $\frac{P}{180} = \frac{Q}{\pi}$
- b) $\frac{\pi}{180} = \frac{P}{Q}$
- c) $\frac{Q}{180} = \frac{P}{\pi}$
- d) $PQ = \frac{\pi}{180}$

Answer to the questions no. (5 – 6) with the given below statement:



Here, $\alpha : \beta = 3 : 4$ and O is the centre of circle.

5. What is the value of α in radian?

[Ctg.B.- 19]

- a) $\frac{4\pi}{7}$
- b) $\frac{3\pi}{7}$
- c) $\frac{3\pi}{14}$
- d) $\frac{2\pi}{14}$

6. What is the value of the length of the arc LM?
 [Ctg.B.- 19]

- a) 3.3660 cm
- b) 4.0392 cm
- c) 5.3856 cm
- d) 6.7320 cm

7. What is the degree the angle between the minute hand and hour hand of a clock when it is 8 : 30 am?
 [All B.- 18]

- a) 105°
- b) 90°
- c) 75°
- d) 60°

8. Which one is the correct value of $65^\circ 42'$?
 [D.B.- 17]

- a) 65.5°
- b) 65.6°
- c) 65.7°
- d) 65.8°

9. Which one of the following is the radian form of 60° ?
 [R.B.- 17]

- a) 3.1416
- b) 3.0419
- c) 2.0419
- d) 1.0472

10. What is the angle between the hour hand and the minute hand at time 8 : 20 am?
 [Dj.B.- 17]

- a) 140°
- b) 130°
- c) 115°
- d) 110°

11. What is the angle between hour hand and minute hand of a clock when it is 1 : 20 pm?
 [C.B.- 17]

- a) 80°
- b) 90°
- c) 100°
- d) 111°

12. $2^\circ =$ What?
 [Ctg.B.- 17]

- a) $\frac{\pi^c}{45}$
- b) $\frac{\pi^c}{90}$
- c) $\frac{\pi^c}{180}$
- d) $\frac{\pi^c}{360}$

13. The diameter of a wheel is 3.1416 metre. What is the circumference of the wheel? [S.B.- 17]

- a) 31.007 metre
- b) 19.739 metre
- c) 9.870 metre
- d) 7.752 metre

14. Which one is correct? [J.B.- 17]

- a) $r = s\theta$
- b) $s = \frac{r}{\theta}$
- c) $r = \frac{\theta}{s}$
- d) $s = r\theta$

15. $\frac{2\pi}{11} = \text{What?}$ [B.B.- 17]

- a) $43^\circ 32' 38''$
- b) $32^\circ 43' 38.18''$
- c) $38^\circ 32' 43''$
- d) $32^\circ 38' 43.18''$

16. 1 Radian = What? [D.B.- 16, R.B.- 15]

- a) 60°
- b) $59^\circ 17' 44.81''$
- c) $58^\circ 17' 44.81''$
- d) $57^\circ 17' 44.81''$

17. Radius of a circle is 5 cm. What is measure of central angle based on 13 cm arc? [D.B.- 16]

- a) 0.38°
- b) 0.38^c
- c) 2.60^c
- d) 2.60°

18. In an isosceles triangle equal angle are 70° . What is another angle in radian? [C.B.- 16]

- a) $\frac{\pi}{9}$
- b) $\frac{9}{2\pi}$
- c) $\frac{9\pi}{2}$
- d) $\frac{2\pi}{9}$

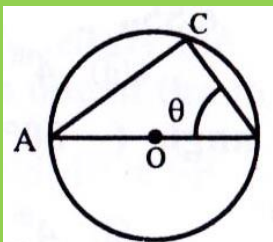
19. The angles of a triangle are in arithmetical progression and the smallest angle is half of the largest angle. What is the value of largest angle in circular system? [Ctg.B.- 16]

- a) $\frac{\pi}{9}$
- b) $\frac{\pi}{3}$
- c) $\frac{\pi}{2}$
- d) $\frac{4\pi}{9}$

20. In which quadrant does $\left(9 \cdot \frac{\pi}{2} - \theta\right)$ lie? [Ctg.B.- 16]

- a) 1st
- b) 2nd
- c) 3rd
- d) 4th

21.



In the figure $\sin\theta = \frac{\sqrt{3}}{2}$ and O is the centre of the circle then - [S.B.- 16]

- i. Circumference of the circle is 2π .
- ii. Area of the circle is π .
- iii. Value of θ is $\frac{\pi}{6}$.

Which one of the following is correct?

- a) i and ii
- b) i and iii
- c) ii and iii
- d) i, ii and iii

22. [J.B.- 16]

- i. Circumference = $\pi \times$ radius
- ii. Radian angle is a constant angle.
- iii. 1 Radian is expressed in 1^R .

Which one of the following is correct?

- a) i and ii
- b) i and iii
- c) ii and iii
- d) i, ii and iii

23. The summation and difference of two angles are $\frac{\pi}{3}$ and $\frac{\pi}{6}$ radian respectively.

Find the larger angle? [D.B.- 15]

- a) $\frac{\pi}{2}$
- b) $\frac{\pi}{3}$
- c) $\frac{\pi}{4}$
- d) $\frac{\pi}{6}$

24. At 6 am in the morning then what is the angle in radian between the hour-hand and minute hand? [D.B.-15]

- a) $\frac{\pi}{3}$
- b) $\frac{\pi}{2}$
- c) π
- d) 2π

25. As usually — [D.B.- 15]

- i. π is irrational number.
- ii. The approximate value of π is 3.14159.
- iii. π is an English letter.

Which one of the following is correct?

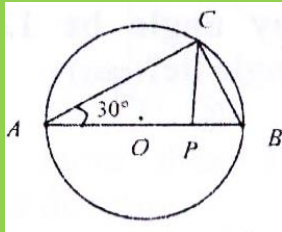
- a) i
- b) li
- c) i and ii
- d) i and iii

26. $1^\circ = \text{Radian?}$ [Dj.B.- 15]

- a) $\frac{\pi^c}{180}$
- b) $\frac{D\pi^c}{180}$
- c) $\frac{5\pi^c}{180}$
- d) $\frac{4\pi^c}{180}$

27. Radius of a Circle is 7 cm. What is the measurement of the angle at the centre in degree subtended by an arc of length 14 cm? [J.B.- 15]

- a) $\frac{\pi}{360}$
- b) $\frac{\pi}{180}$
- c) $\frac{360}{\pi}$
- d) $\frac{1260}{\pi}$



Answer to the questions no. (28 – 29) following the above geometric figure -

28. If O is the centre of the circle then what is the measure of $\angle ACB$?

[B.B.- 15]

- a) 45° b) 60°
c) 80° d) 90°

29. What is the length of the circumference of circle ABC if $AB = 2r$ unit?

[B.B.- 15]

- a) $\frac{\pi r}{2}$ unit b) πr unit
c) $2\pi r$ unit d) $4\pi r$ unit

30. If $\tan\theta = \frac{5}{12}$ and $180^\circ < \theta < 270^\circ$ then what is the value of $\sin\theta$?

- a) $-\frac{13}{12}$ b) $-\frac{12}{13}$
c) $\frac{5}{12}$ d) $-\frac{5}{13}$

31. What is the radius of the giant wheel which makes 80 revolutions to cover a distance of 1.25 km?

- a) 1.24 b) 2.48
c) 4.97 d) 7.81

32. What is the angle between the hour hand and minute hand at time 9 : 25 am?

- a) 120° b) 107°
c) 132.5° d) 127.5°

33. The radius of a wheel is 50 cm. If the wheel revolves ones then how much distance will it cross?

- a) 25π b) 50π
c) 75π d) 100π

34. Radian angle is a -

- a) Right angle
b) Linear angle
c) Constant angle
d) Obtuse angle

35. $(-5, 7)$ lie on which quadrant?

- a) 1st Quadrant
b) 2nd Quadrant
c) 3rd Quadrant
d) 4th Quadrant

36. In which quadrants of the angles -750° lie?

- a) 1st Quadrant
b) 2nd Quadrant
c) 3rd Quadrant
d) 4th Quadrant

37. In which quadrant the angle -300° lie?

- a) 1st b) 2nd
c) 3rd d) 4th

38. Find the supplementary angle of $x + y$ in radian.

- a) $x + y - \pi$ b) $x - y - \pi$
c) $\pi - x + y$ d) $\pi - x - y$

39. Which one is the approximate value of 1 radian in degree?

- a) 53.7 b) 57.3
c) 57.8 d) 58.7

40. A wheel makes 80 revolutions to cover a distance of 1.5 km. What is the radius of the wheel?

- a) 2.894 b) 2.498
c) 2.984 d) 2.789

41. What is the radius of a wheel when its circumference be 44 meters?

- a) 3.5m b) 7m
c) 9m d) 5m

42. What is the angle between the hour hand and minute hand at time 9 : 25 am?

- a) 120° b) 107°
c) 132.5° d) 127.5°

43. What is the approximate radian measure of the angle between the minute hand and hour hand of a clock at 9 : 30 am?

- a) 0.383 b) 0.833
c) 1.833 d) 1.338

44. If diameter is r of any circle then what is the circumference of that circle?

- a) $4\pi r$ b) $2\pi r$
c) πr d) $\frac{\pi r}{2}$

- 45.

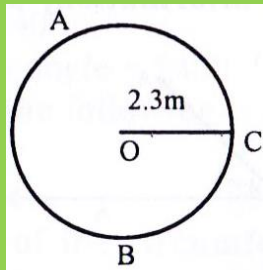
- i. Circumference of a circle is $27\pi r$, where r is the radius.
ii. Arc of a circle $S = r\theta$, where r is the radius and θ is the angle against the arc of the circle.

iii. 1 right angle = $\frac{\pi}{3}$.

Which one of the following is correct?

- a) i and ii b) ii and iii
c) i and iii d) i, ii and iii

Solves questions from (46 - 47) based on the figure below:

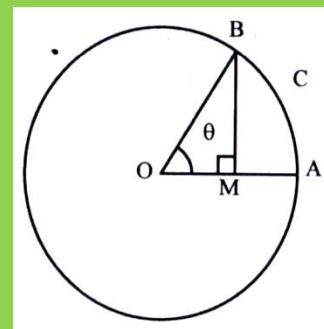


Radius of wheel ABC is 2.3 metre.

46. How much distance the wheel will pass if it rotates 10 times?
a) 144.5 m b) 145.5 m
c) 149.5 m d) 137.5 m
47. How many times the wheel will rotate to pass a distance of 289.028 m?
a) 19 times b) 20 times
c) 21 times d) 22 times
48. If the value of any angle is θ in degree and $180^\circ < \theta < 270^\circ$ in which quadrant does the θ lie?
a) 1st b) 2nd
c) 3rd d) 4th
49. If we denote an angle by θ then which one is the of the fourth quadrant?
a) $0^\circ < \theta < 90^\circ$
b) $90^\circ < \theta < 180^\circ$
c) $180^\circ < \theta < 270^\circ$
d) $270^\circ < \theta < 360^\circ$
50. If an angle greater than 90° and less than 180° then which quadrant does the angle lie?
a) 1st b) 2nd
c) 3rd d) 4th

Creative Questions:

1.



In figure $OA = 10$ cm. [Ctg.B.- 19]

- a) Express θ° in radians.
b) A sprinter starts his journey at 'A' and reached at 'B' within 5 seconds then find the velocity of the sprinter when $\theta = 60^\circ$.
c) If $2 \left(\frac{OM}{OB}\right)^2 = 1 + 2 \left(\frac{BM}{OB}\right)^2$ then find the value of θ . [where $0^\circ \leq \theta \leq 2\pi$]
2. The wheel of a car moving from Dhaka to Khulna revolves 720 times in a minute. The radius of the wheel is 0.25 meter. [Dj.B.- 17]
a) Find the circumference of the wheel.
b) Find the speed of the car.
c) If the distance of Dhaka and Khulna subtends 2° angle at the centre of the earth then find the time required to go from Dhaka to Khulna. [The radius of the earth is 6440 km]

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