Chapter 8: Trigonometry

1. **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]
ⓐ 105 ⓑ 90 ⓒ 75 ⓓ 60 **ⓒ**

2. **$\cos\theta = \frac{1}{2}$, $\pi < \theta < 2\pi$, then what is the value of θ?** [All B.18]
ⓐ $\frac{\pi}{3}$ ⓑ $\frac{4\pi}{3}$ ⓒ $\frac{5\pi}{3}$ ⓓ $\frac{11\pi}{6}$ **ⓒ**

3. **In which quadrant the angle (–980°) lie?** [All B.18]
ⓐ First ⓑ Second
ⓒ Third ⓓ Fourth **ⓑ**

4. **Which one is the correct value of 65°42′?** *[D.B.17]*
ⓐ 65.5° ⓑ 65.6° ⓒ 65.7° ⓓ 65.8° **ⓒ**

5. **Which one of the following is the radian form of 60°?** [R.B.17]
ⓐ 3.1416 ⓑ 3.0419 ⓒ 2.0419 ⓓ 1.0472 **ⓓ**

6. **What is the angle between the hour hand and the minute hand at time 8 : 20 am?** *[Dj.B. 17]*
ⓐ 140° ⓑ 130° ⓒ 115° ⓓ 110° **ⓑ**

7. **What is the angle between hour hand and minute hand of a clock when it is 1:20 pm?** *[C.B.17]*
ⓐ 80° ⓑ 90° ⓒ 100° ⓓ 111° **ⓐ**

8. **2° = ?** [Ctg.B.17]
ⓐ $\frac{\pi^c}{45}$ ⓑ $\frac{\pi^c}{90}$ ⓒ $\frac{\pi^c}{180}$ ⓓ $\frac{\pi^c}{360}$ **ⓑ**

9. **The diameter of a wheel is 3.1416 metre. What is the circumference of the wheel?** *[S.B.17]*
ⓐ 31.007 metre ⓑ 19.739 metre
ⓒ 9.870 metre ⓓ 7.752 metre **ⓒ**

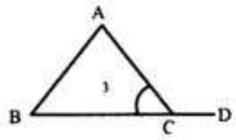
10. **Which one is correct?** [J.B.17]
ⓐ $r = s\theta$ ⓑ $s = \frac{r}{\theta}$ ⓒ $r = \frac{\theta}{s}$ ⓓ $s = r\theta$ **ⓓ**

11. **$\frac{2\pi}{11}$ = what?** [B.B.17]
ⓐ 43°32′38″ ⓑ 32°43′38.18″
ⓒ 38°32′43″ ⓓ 32°38′43.18″ **ⓑ**

12. **1 Radian = ?** *[D.B.16; R.B.15]*
ⓐ 60° ⓑ 59°17′44.81″
ⓒ 58°17′44.81″ ⓓ 57°17′44.81″ **ⓓ**

13. **In an isosceles triangle equal angles are 70°. What is the another angle in radian?** [C.B.16]
ⓐ $\frac{\pi}{9}$ ⓑ $\frac{9}{2\pi}$ ⓒ $\frac{9\pi}{2}$ ⓓ $\frac{2\pi}{9}$ **ⓓ**

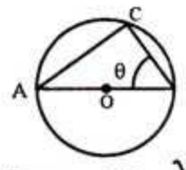
14. **The angles of a triangle are in arithmetical progression and the smallest angle is half of the largest angle. What is the value of largest angle in circular system?** [Ctg.B.16]
ⓐ $\frac{\pi}{9}$ ⓑ $\frac{\pi}{3}$ ⓒ $\frac{\pi}{2}$ ⓓ $\frac{4\pi}{9}$ **ⓓ**

15.


In the above figure if AB = AC; then— [Dj.B.16]
ⓐ $\sin\angle ACD = \cos 55°$ ⓑ $\sin\angle ABC = \sin 55°$
ⓒ $\cos\angle BAC = \sin 40°$ ⓓ $\sin\angle ACD = \text{cosec } 55°$ **ⓐ**

16. **In which quadrant does in $\left(9.\frac{\pi}{2} - \theta\right)$ lie?** [Ctg.B.16]
ⓐ 1st ⓑ 2nd ⓒ 3rd ⓓ 4th **ⓐ**

17. **Radius of a circle is 5 cm. What is measure of central angle based on 13 cm arc?** [D.B.16]
ⓐ 0.38° ⓑ 0.38^c ⓒ 2.60^c ⓓ 2.60° **ⓒ**

18.


In the figure $\sin\theta = \frac{\sqrt{3}}{2}$ and O is the centre of the circle, then—
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? [S.B.16]
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii **ⓐ**

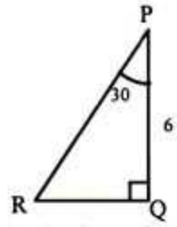
19. i. Circumference = π × radius
ii. Radian angle is a constant angle
iii. 1 Radian is expressed in 1^R
Which one of the following is correct? [J.B.16]
ⓐ i & ii ⓑ ii & iii
ⓒ i & iii ⓓ i, ii & iii **ⓑ**

20. **What is the value of $\cos\left(\frac{-31\pi}{3}\right)$?** [D.B.17]
ⓐ 1 ⓑ $\frac{\sqrt{3}}{2}$ ⓒ $\frac{1}{2}$ ⓓ $\frac{1}{\sqrt{2}}$ **ⓒ**

21. **What is the value of $\sin^2\left(2\pi - \frac{\pi}{6}\right)$?** [R.B.17]
ⓐ $-\frac{1}{4}$ ⓑ $-\frac{1}{2}$ ⓒ $\frac{1}{4}$ ⓓ $\frac{1}{2}$ **ⓒ**

22. **If $\cos\theta = \frac{4}{5}$ and θ is acute angle, then $\text{cosec}\theta$ = ?** [Ctg.B.17]
ⓐ $\frac{3}{5}$ ⓑ $\frac{2}{5}$ ⓒ $\frac{5}{3}$ ⓓ $\frac{5}{2}$ **ⓒ**

23. **If sin3A = cos3A, then which one is the value of 'A'?** [Ctg.B.17]
ⓐ 15° ⓑ 20° ⓒ 30° ⓓ 40° **ⓐ**

24.


In figure, what is the length of PR? [S.B.17]
ⓐ $2\sqrt{3}$ cm ⓑ $4\sqrt{3}$ cm
ⓒ $6\sqrt{3}$ cm ⓓ 12 cm **ⓑ**

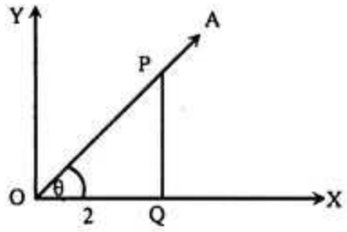
25. **What is the value of $\sec\left(2\pi - \frac{\pi}{4}\right)$?** [S.B.17]
ⓐ $-\sqrt{2}$ ⓑ $-\frac{2}{\sqrt{3}}$ ⓒ $\frac{2}{\sqrt{3}}$ ⓓ $\sqrt{2}$ **ⓓ**

26. **What is the value of $\cos\left(-\frac{25\pi}{6}\right)$?** [J.B.17]
ⓐ $\frac{2}{\sqrt{3}}$ ⓑ $\frac{\sqrt{3}}{2}$ ⓒ $\frac{1}{2}$ ⓓ $\frac{1}{\sqrt{2}}$ **ⓑ**

27. What is the value of $\tan\left(\frac{-25\pi}{6}\right)$? [B.B.17]

ⓐ -1 ⓑ $-\frac{1}{\sqrt{3}}$ ⓒ $\frac{1}{\sqrt{3}}$ ⓓ 1 **ⓑ**

28.



In the above figure which is the value of $\cos\theta$? [R.B.16]

ⓐ $\frac{1}{2}$ ⓑ $\frac{1}{\sqrt{5}}$ ⓒ $\frac{2}{\sqrt{5}}$ ⓓ $\frac{\sqrt{5}}{2}$ **ⓒ**

29. If $\cos\theta = -\frac{1}{2}$ and $\pi < \theta \le \frac{3\pi}{2}$, then which one of the value of $\tan\theta$? [B.B.16]

ⓐ $-\sqrt{3}$ ⓑ $\frac{1}{\sqrt{3}}$ ⓒ 1 ⓓ $\sqrt{3}$ **ⓓ**

30. When $\cos\theta = \frac{\sqrt{3}}{2}$, then $\sin 3\theta = ?$ [B.B.16]

ⓐ 0 ⓑ $\frac{\sqrt{3}}{2}$ ⓒ $\frac{1}{2}$ ⓓ 1 **ⓓ**

31. If $\cos\alpha = -\frac{\sqrt{3}}{2}$ while $\frac{p}{2} < \alpha < \pi$, what is the value of α? [S.B.16]

ⓐ $\frac{5p}{6}$ ⓑ $\frac{2p}{3}$ ⓒ $\frac{7p}{6}$ ⓓ $\frac{4p}{3}$ **ⓒ**

32. If $P = \frac{\pi}{4}$, $Q = \frac{3\pi}{4}$, what is the value of $\cos(P + Q)$? [C.B.16]

ⓐ -1 ⓑ 0 ⓒ 0.5 ⓓ 1 **ⓒ**

33. If $\cos\theta = \frac{1}{\sqrt{2}}$, then [D.B.17]

i. $\sec^2\theta = 2$

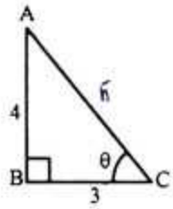
ii. $\sin^2\theta = \frac{1}{2}$ iii. $\tan^2\theta = 1$

Which one is correct?

ⓐ i and ii ⓑ i and iii

ⓒ ii and iii ⓓ j, ii and iii **ⓓ**

34. From the figure— [J.B.17]



i. $\tan\theta = \frac{4}{3}$

ii. $\cos\theta = \frac{3}{5}$

iii. $\sin^2\theta = \frac{16}{25}$

Which one of the following is correct?

ⓐ i and ii ⓑ ii and iii

ⓒ i and iii ⓓ i, ii and iii **ⓓ**

Answer to the questions no. 35 and 36 according to the given information.

$\sin A$ and $\cos A$ are opposite in sign, where $\sin A = -\frac{2}{\sqrt{5}}$.

35. In which quadrant the angle A lie? [Dj.B.17]

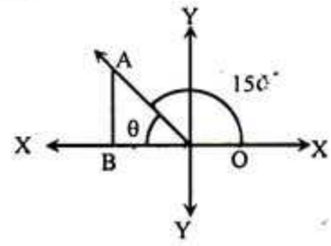
ⓐ First ⓑ Second

ⓒ Third ⓓ Fourth **ⓓ**

36. What is the value of $\tan A$? [Dj.B.17]

ⓐ -2 ⓑ $-\frac{1}{2}$ ⓒ $\frac{1}{2}$ ⓓ 2 **ⓐ**

Answer the question no. 37 and 38 from the following information :—



37. What is the value of θ in circular system? [C.B.17]

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

38. What is the value of $\cos\theta.\tan\theta$? [C.B.17]

ⓐ $\frac{3}{2}$ ⓑ $\frac{1}{\sqrt{2}}$ ⓒ $\frac{\sqrt{3}}{2}$ ⓓ $\frac{1}{2}$ **ⓓ**

Answer to the questions no. 39 and 40 to the information given bellow: [Ctg.B.17]

In ΔABC, $AB = AC = 5$cm, $AD \perp BC$ and $BC = 6$cm.

39. Area of ΔABC in sq. cm? [Ctg.B.17]

ⓐ 12 ⓑ 13

ⓒ 14 ⓓ 15 **ⓐ**

40. If the angle between AB and AD is θ, then $\tan\theta = ?$ [Ctg.B.17]

ⓐ $\frac{3}{4}$ ⓑ $\frac{2}{3}$ ⓒ $\frac{1}{2}$ ⓓ $\frac{1}{3}$ **ⓐ**

41. What is the value of $\left(\sec^2\frac{\pi}{3} + \sin^2\frac{\pi}{4}\right)$? [S.B.17]

ⓐ $\frac{2}{9}$ ⓑ $\frac{1}{2}$ ⓒ $\frac{17}{4}$ ⓓ $\frac{9}{2}$ **ⓓ**

42. $\sin^2(-\theta) + \cos^2(\theta) =$ what? [B.B.17]

ⓐ -1 ⓑ 0

ⓒ 1 ⓓ Undefined **ⓒ**

43. The angle 520° lies on which quadran [R.B.16]

ⓐ First ⓑ Second

ⓒ Third ⓓ Fourth **ⓑ**

44. What is the value of $\sin 120°$? [D.B.16, 15]

ⓐ $\frac{\sqrt{3}}{2}$ ⓑ $\frac{1}{2}$ ⓒ $\frac{1}{\sqrt{2}}$ ⓓ $-\frac{1}{2}$ **ⓐ**

45. Which of the following is the value of $\sin\left(2\pi - \frac{\pi}{3}\right)$? [R.B 16]

ⓐ $\frac{\sqrt{3}}{2}$ ⓑ $\frac{1}{2}$ ⓒ $-\frac{\sqrt{3}}{2}$ ⓓ $-\frac{1}{2}$ **ⓒ**

46. The value of $\cos\left(2\pi + \frac{\pi}{6}\right)$ is— [J.B.16]

ⓐ $-\frac{\sqrt{3}}{2}$ ⓑ $-\frac{1}{\sqrt{3}}$ ⓒ $\frac{\sqrt{3}}{2}$ ⓓ $\frac{1}{\sqrt{2}}$ **ⓒ**

47. Find the value of $\cos^2\frac{\pi}{3} - \sin^2\frac{\pi}{4}$. [D.B.16]

ⓐ $-\frac{1}{4}$ ⓑ $-\frac{1}{2}$ ⓒ $\frac{1}{2}$ ⓓ 1 **ⓐ**