

**FUNDAMENTALS OF TRIGONOMETRY**

1. Direction of Qibla is found by using \_\_\_\_\_

- a) Plane Geometry
- b) Spherical Trigonometry
- c) Plane Trigonometry
- d) Analytical Geometry
- e) None of these

Answer: b

2. If a circle is divided into 360 parts, then the angle subtended by each part at the center of the circle is called \_\_\_\_\_

- a) 1 radian
- b) 1 degree
- c) 1 angstrom
- d) 1 minute
- e) None of these

Answer: b

3. The union of two non-collinear rays which have a common endpoint is called the \_\_\_\_\_

- a) Angle
- b) Radian
- c) Degree
- d) Minute
- e) Second

Answer: a

4. One degree is denoted by \_\_\_\_\_

- a) 1 rad
- b) 1'
- c) 1''
- d) 1°
- e) None of these

Answer: d

5. 1rt. angle = \_\_\_\_\_

- a) 90°
- b) 180°
- c) 270°
- d) 190°
- e) None of these

Answer: a

6. The 60<sup>th</sup> part of one degree is called one \_\_\_\_\_

- a) centimeter
- b) radian
- c) degree
- d) minute
- e) none of these

Answer: d

7. Measure of the central angle of an arc of a circle whose length is equal to the radius of the circle is known as \_\_\_\_\_

- a) 1 degree
- b) 1 radian
- c) 1 rt. angle
- d) All of these
- e) None of these

Answer: b

8. The circumference of a circle r is considered as \_\_\_\_\_

- a)  $2\pi r$
- b)  $\pi r$
- c)  $3\pi r$
- d)  $4\pi r$
- e) None of these

Answer: a

9. 1 radian = \_\_\_\_\_

- a) 57°17'45"
- b) 47°
- c) 37°
- d) 38°
- e) None of these

Answer: a

10. 1° = \_\_\_\_\_

- a) 60'
- b) 60''
- c) 3600'
- d) 360'
- e) None of these

Answer: a

106.  $1 + \cot^2 2\theta = \underline{\hspace{2cm}} ?$

- a)  $\sec^2 \theta$
- b)  $\operatorname{cosec}^2 \theta$
- c)  $\operatorname{cosec}^2 2\theta$
- d)  $\sec^2 \theta$
- e) none of these

Answer: c

12. The 60<sup>th</sup> part of one minute is called one

\_\_\_\_\_

- a) centimeter
- b) radian
- c) degree
- d) minute
- e) second

Answer: e

13.  $180^\circ = \underline{\hspace{2cm}}$

- a)  $\pi$  radian
- b)  $2\pi$  radian
- c)  $\frac{\pi}{2}$
- d)  $\frac{3\pi}{4}$
- e) None of these

Answer: a

14. An arc PQ is subtends and angle  $60^\circ$  at the center of a circle of radius 1 cm. The length PQ is \_\_\_\_\_

- a) 60 cm
- b) 30 cm
- c)  $\frac{\pi}{6}$  cm
- d)  $\frac{\pi}{3}$  cm
- e)  $\frac{\pi}{18}$  cm

Answer: d

15. One second is denoted by \_\_\_\_\_

- a) 1 rad
- b) 1'
- c) 1''

- d)  $1^\circ$
- e) None of these

Answer: c

16.  $\frac{\pi}{4} = \underline{\hspace{2cm}}$

- a)  $30^\circ$
- b)  $60^\circ$
- c)  $90^\circ$
- d)  $220^\circ$
- e) None of these

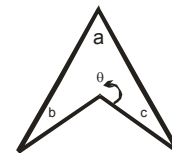
Answer: e

17. If  $\theta = \frac{\pi}{6}$ ,  $\cos \theta$  is \_\_\_\_\_

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

Answer: c

18. In the given figure the angle  $\theta$  is \_\_\_\_\_



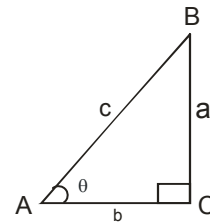
- a)  $2\pi - a$
- b)  $2\pi - (a + b)$
- c)  $2\pi - (a + b + c)$
- d)  $a + b + c$
- e)  $2d - 2b$

Answer: c

19.  $1' = \underline{\hspace{2cm}}$

- a)  $60^\circ$

- b)  $60''$   
 c)  $3600''$   
 d)  $3600^\circ$   
 e) None of these  
 Answer: b

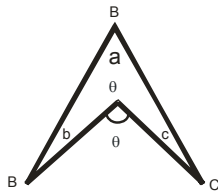


- a)  $\frac{a}{c}$   
 b)  $\frac{c}{a}$   
 c)  $\frac{c}{b}$   
 d)  $\frac{b}{c}$   
 e) None of these  
 Answer: a

20. What is the length of an arc of a circle of radius 5cm, whose central angle is of  $140^\circ$  \_\_\_\_\_

- a) 2.443 radians  
 b) 1.443 radians  
 c) 0.443 radians  
 d) 2 radians  
 e) None of these  
 Answer: a

21. In the given figure the angle  $a + b + c$  is \_\_\_\_\_

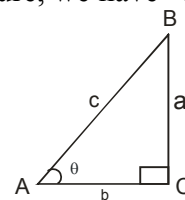


- a)  $\angle BDC = \theta$   
 b)  $\pi - \theta$   
 c)  $2\pi - \theta$   
 d)  $2\pi + \theta$   
 e)  $\angle B$   
 Answer: c

22. Two right angles are the angle of measure \_\_\_\_\_

- a)  $180''$   
 b)  $180'$   
 c)  $60^\circ$   
 d)  $90^\circ$   
 e)  $180^\circ$   
 Answer: e

23. For a right angled triangle ABC as shown in the figure we have  $\sin \theta =$  \_\_\_\_\_

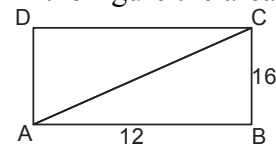


- a)  $\frac{c}{a}$

24. Four right angles are the angle of measure \_\_\_\_\_

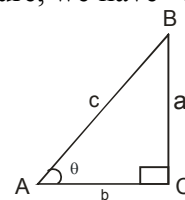
- a)  $90^\circ$   
 b)  $180^\circ$   
 c)  $270^\circ$   
 d)  $360^\circ$   
 e)  $360'$   
 Answer: d

25. In the figure the area of triangle ABC is \_\_\_\_\_



- a) 28  
 b) 32  
 c) 96  
 d) 192  
 e) 182  
 Answer: c

26. For a right angled triangle ABC as shown in the figure, we have  $\operatorname{Cosec} \theta =$  \_\_\_\_\_



- a)  $\frac{c}{a}$

b)  $\frac{c}{b}$

c)  $\frac{b}{c}$

d)  $\frac{+c}{-c}$

e) None of these

Answer: a

27. The system of measurement in which the angle is measured in degrees, and its subunits, minutes and seconds is called \_\_\_\_\_

- a) Circular system
- b) Sexagesimal system
- c) MKS system
- d) CGS system
- e) None of these

Answer: b

28.  $Cot\theta =$  \_\_\_\_\_

a)  $\frac{Sin\theta}{Cos\theta}$

b)  $\frac{Cos\theta}{Sin\theta}$

c)  $\frac{1}{Sin\theta}$

d)  $\frac{1}{Cos\theta}$

e) None of these

Answer: b

29.

- a)
- b)
- c)
- d)
- e)

Answer: a

30. The system of measurement in which the angle is measured in radians is called \_\_\_\_\_

- a) Circular system
- b) Sexagesimal system
- c) MKS system
- d) CGS system
- e) None of these

Answer: a

31.  $Sec\theta =$  \_\_\_\_\_

a)  $\frac{Sin\theta}{Cos\theta}$

b)  $\frac{Cos\theta}{Cos\theta}$

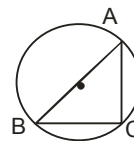
c)  $\frac{1}{Sin\theta}$

d)  $\frac{1}{Cos\theta}$

e) None of these

Answer: d

32. In the figure, the shaded area is given by



a)  $25\pi/4 - 6$

b)  $5\pi - 6$

c)  $25/4\pi$

d) 6

e)  $7\pi$

Answer: a

33.  $16^\circ 40' 38'' =$

a)  $140^\circ$

b)  $17^\circ$

c)  $16^\circ$

d)  $60038'$

e)  $60038''$

Answer: e

34.  $Sin^2\theta + Cos^2\theta =$  \_\_\_\_\_, for all values of angle.

a) 1

b) 0

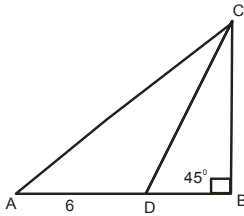
c)  $1 + Tan^2\theta$

d) -1

e) None of these

Answer: a

35. In the figure the length of AB is

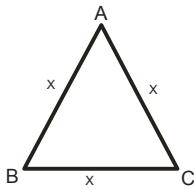


- a) 7
  - b)  $6 + \sqrt{2}$
  - c)  $6 + 2\sqrt{2}$
  - d) 12
  - e) 13
- Answer: a

36.  $16^\circ =$  \_\_\_\_\_

- a)  $960^\circ$
  - b)  $960'$
  - c)  $57600'$
  - d)  $60038'$
  - e)  $60038''$
- Answer: b

37. In the figure the angle A is ( $AB = AC = X$ )



- a)  $50^\circ$
  - b)  $60^\circ$
  - c)  $90^\circ$
  - d)  $120^\circ$
  - e)  $180^\circ$
- Answer: b

38. Two right angles are equal to

- a)  $180'$
  - b)  $180''$
  - c)  $648000'$
  - d)  $10800''$
  - e)  $10800'$
- Answer: e

39. The associated angle of  $280^\circ$  is

- a)  $100^\circ$
- b)  $10^\circ$

- c)  $80^\circ$
- d)  $-80^\circ$
- e)  $190^\circ$

Answer: c

40.  $\text{Cot } 180^\circ =$  \_\_\_\_\_

- a) 1
- b) 0
- c) -1
- d)  $\infty$
- e) -11

Answer: d

41. A radian is the measure of the central angle of an arc of a circle whose length is equal to the

- a) half of radius of the circle
- b) diameter of the circle
- c) radius of the circle
- d) one third of radius of the circle
- e) none of these

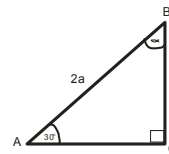
Answer: c

42.  $\text{Sec } 180^\circ =$  \_\_\_\_\_

- a) 1
- b) 0
- c) -1
- d)  $\infty$
- e) None of these

Answer: c

43. In the  $\Delta ABC$  the angle  $\alpha$  is



- a)  $30^\circ$
- b)  $45^\circ$
- c)  $60^\circ$
- d)  $90^\circ$
- e)  $180^\circ$

Answer: c

44. The central angle of an arc of a circle whose length is equal to the radius of the circle is called the

- a) degree

- b) radian
  - c) minute
  - d) second
  - e) none of these
- Answer: b

59. Convert  $\left(\frac{180}{\pi}\right)^\circ$  to radians

- a) 0.94 radians
  - b) 1 radians
  - c) 3.97 radians
  - d) 4.57 radians
  - e) 3.54 radians
- Answer: b

60.  $1^\circ =$  \_\_\_\_\_

- a)  $\frac{\pi}{180}$  radians
  - b)  $\frac{180}{\pi}$  radians
  - c)  $\frac{1}{180\pi}$  radians
  - d)  $180\pi$  radians
  - e)  $\pi$  radians
- Answer: a

61.  $\left(22\frac{1}{2}\right)^\circ =$

- a)  $\frac{\pi}{2}$  radians
  - b)  $\frac{\pi}{4}$  radians
  - c)  $\frac{\pi}{8}$  radians
  - d)  $180\pi$  radians
  - e)  $\pi$  radians
- Answer: c

62. Convert radian measure  $\frac{4}{3\pi}$  to degree

- a)  $24.32^\circ$
  - b)  $24.97^\circ$
  - c)  $4.96^\circ$
  - d)  $1.97^\circ$
  - e)  $23.42^\circ$
- Answer: a

63.  $\theta =$  \_\_\_\_\_

- a)  $\frac{1}{\phi}$
- b)  $\frac{1}{r}$
- c)  $\frac{r}{l}$
- d)  $\frac{\phi}{r}$
- e)  $\frac{r}{\phi}$

Answer: b

64.  $\frac{5\pi}{4}$  radians =

- a)  $360^\circ$
- b)  $335^\circ$
- c)  $270^\circ$
- d)  $225^\circ$
- e)  $125^\circ$

Answer: d

65. The radian measure of the angle at the center of circle of radius 12cm which cuts off an arc 18cm long.

- a) 9.47 radians
- b) 1.19 radians
- c) 1.5 radians
- d) 2.5 radians
- e) None of these

Answer: c

66.  $150^\circ =$

- a)  $\frac{5\pi}{6}$  radians
- b)  $\frac{2\pi}{3}$  radians
- c)  $\frac{\pi}{4}$  radians
- d)  $180\pi$  radians
- e)  $\pi$  radians

Answer: a

67. The length of the arc cut off on a circle of radius 6cm by a central angle of  $\frac{2\pi}{3}$  radians

- a) 12.566cm
- b) 10.033cm
- c) 12.113cm
- d) 9.156cm
- e) 6.56cm

Answer: a

68.  $80^\circ =$

- a)  $\frac{5\pi}{6}$  radians
- b)  $\frac{4\pi}{9}$  radians
- c)  $\frac{\pi}{4}$  radians
- d)  $180\pi$  radians
- e)  $\pi$  radians

Answer: b

69. The radius of the circle when  $l = 3\text{cm}$ ,  $\theta = 3.4$  radians.

- a) 0.214 cm
- b) 9.419 cm
- c) 3.146 cm
- d) 4.978 cm
- e) None of these

Answer: e

70. In one hour, the minutes hand of a clock turns through

- a)  $\frac{5\pi}{6}$  radians
- b)  $\frac{4\pi}{9}$  radians
- c)  $\frac{\pi}{4}$  radians
- d)  $180\pi$  radians
- e)  $2\pi$  radians

Answer: e

71. In the second quadrant  $\sin\theta$  is \_\_\_\_\_

- a) positive
- b) negative
- c) both
- d) not defined
- e) none of these

Answer: a

72. In one hour, the hours hand of a clock turns through

- a)  $\frac{\pi}{12}$  radians
- b)  $\frac{\pi}{8}$  radians
- c)  $\frac{\pi}{6}$  radians
- d)  $\pi$  radians
- e)  $2\pi$  radians

Answer: c

77.  $\cos\theta = \frac{1}{?}$

- a)  $\sin\theta$
- b)  $\tan\theta$
- c)  $\cos\theta$
- d)  $\sec\theta$
- e) none of these

Answer: e

78. In the 2<sup>nd</sup> quadrant  $\sec\theta$  is \_\_\_\_\_?

- a) positive
- b) negative
- c) both
- d) not defined
- e)  $-1$

Answer: b

79. In the 2<sup>nd</sup> quadrant  $\cot\theta$  is \_\_\_\_\_?

- a) positive
- b) negative
- c) both
- d) not defined
- e)  $< 1$

Answer: b

80. In 15 minutes the hours hand of a clock turns through

- a)  $7.5^\circ$
- b)  $15^\circ$
- c)  $30^\circ$
- d)  $60^\circ$
- e)  $120^\circ$

Answer: a

82. In the 3<sup>rd</sup> quadrant  $\sin \theta$  is \_\_\_\_\_ ?

- a) positive
- b) negative
- c) both
- d) not defined
- e)  $> 0$

Answer: b

93.  $\sec^2 \theta - \tan^2 \theta =$  \_\_\_\_\_

- a)  $-1$
- b)  $\operatorname{cosec} \theta$
- c)  $\tan \theta$
- d)  $1$
- e)  $-11$

Answer: d

94. The area of a sector of a circular region of radius  $r$  and the central angle of the sector  $\theta$  radians is

- a)  $\frac{1}{2} r \theta^2$
- b)  $\frac{1}{2} r^2 \theta$
- c)  $\frac{1}{2} r \theta$
- d)  $r^2 \theta$
- e)  $r \theta^2$

Answer: b

95. The area of a sector with a central angle of 1 radian in a circular region whose radius is 2m.

- a)  $2\text{m}^2$
- b)  $1\text{m}^2$
- c)  $0.5\text{m}^2$
- d)  $\frac{\pi}{6} \text{m}^2$
- e)  $\frac{\pi}{3} \text{m}^2$

Answer: a

98.  $\cos^2 \frac{\theta}{2} + \sin^2 \frac{\theta}{2} =$  \_\_\_\_\_

- a)  $\frac{1}{4}$
- b)  $\frac{1}{2}$
- c)  $2$
- d)  $0$
- e)  $1$

Answer: e

101.  $\sin \frac{-3\pi}{2} =$  \_\_\_\_\_ ?

- a)  $1$
- b)  $0$
- c)  $-1$
- d)  $11$
- e) None of these

Answer: a

102.  $\cos \frac{-3\pi}{2} =$  \_\_\_\_\_ ?

- a)  $1$
- b)  $0$
- c)  $-1$
- d)  $10$
- e) None of these

Answer: b

103.  $\cos 9\pi =$  \_\_\_\_\_ ?

- a)  $1$
- b)  $0$
- c)  $-1$
- d)  $10$
- e) None of these

Answer: c

104.  $\operatorname{cosec}^2 \theta - \cot^2 \theta =$  \_\_\_\_\_ ?

- a)  $1$
- b)  $0$
- c)  $-1$
- d)  $\tan^2 \theta$



e)  $\sec^2 \theta$

Answer: a

105.  $\cos^2 2\theta = \underline{\hspace{2cm}} ?$

a)  $1 - \sin^2 \theta$

b)  $1 + \sin^2 \theta$

c)  $1 - \sin^2 2\theta$

d)  $1 - \sin \theta$

e)  $1 + \sin \theta$

Answer: c