MATHS

BOOKS - CALCUTTA BOOK HOUSE MATHS (BENGALI ENGLISH)

CONCEPT OF MEASUREMENT OF ANGLES

Example

1. The measure of one angle of a trangle is 65° and other angle is $\frac{\pi}{12}$, then determine the sexagesimal value and circular value of third angle.

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2. If the sum of two angles is 135° and their difference is $\frac{\pi}{12}$, then determine the sexagesimal value and circular value of two angles .

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3. If the ratio of three angles of a triangle is 2 : 3 : 4, then determine the circular value of the greatest angle .

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4. A rotating ray makes an angle $-5\frac{1}{12}\pi$. Determine the direction in which the ray has comletely rotated and there after what more angle it has produced.

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5. Reme has drawn an isosceles triangle ABC whose included angle of two equal sides is $\angle ABC = 45^\circ$, the bisector of angleABC intersects the side AC at the poin

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6. The base BC of the equilateral triangle ABC is extended upto the point E so that CE =BC. By joining A, E, determine the circular values of the angles of ΔAEC.

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7. If the measures of three of a quadrilateral are $\frac{\pi}{3}, \frac{5\pi}{6} \text{and} 90^\circ$ respectively, determine the sexagesimal and circular value of fourth angle.

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8. The end point of the minute hand of a clock rotates in 1 hour

A. $\frac{\pi}{4}$

B. $\frac{\pi}{2}$

C. π radian

D. 2π radian

Answer:

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9. $\frac{\pi}{6}$ radians equals to

A. 60°

B. 45°

C. 90°

D. 30°

Answer:

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10. The circular value of each internal angle of a regular hexagon is

A. $\frac{\pi}{3}$

B. $\frac{2\pi}{3}$

C. $\frac{\pi}{6}$

D. $\frac{\pi}{4}$

Answer:

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11. The measurement of θ in the relation $s = r(\theta)$ is determined by

A. Sexagesimal system

B. Circular system

C. Those two systems

D. None of these two systems

Answer:

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12. In cyclic quadrilateral ABCD, If $\angle A = 120^\circ$, then the circular value of $\angle C$ is

A. $\frac{\pi}{3}$

B. $\frac{\pi}{6}$

C. $\frac{\pi}{2}$

D. $\frac{2\pi}{3}$

Answer:

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13. If the value of an angle in degree is D and in radian is R, then determine the value of $\frac{R}{D}$.

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14. Determine the value of complementary angle of the measure 63° 35' 15".

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15. If the mesures of two angles of a triangle are $65^\circ 56' 55 \text{and} 64^\circ 3' 5,$ then calculate the cirular value of the third angle.

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16. In a circle, if an are of length 220 cm subtends an angle of measure 63° at the centre ,then determine the radius of the circle.

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17. Find the circular value of an angle formed by the end point of hour of a clock in 1 hour rotation.

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18. In $\Delta ABC, AC=BC$ and BC is extended upto the point D. If angle $ACD = 144$ ABC.

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19. If the difference of two acute angles of a right angled trangled is $\frac{2\pi}{5}$ then find the sexagesimal values of two angles.

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20. The measure of one angle of a trangle is 65° and other angle is $\frac{\pi}{12}$, then determine the sexagesimal value and circular value of third angle.

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21. If the sum of two angles is 135° and their difference is $\frac{\pi}{12}$, then determine the sexagesimal value and circular value of two angles .

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22. If the ratio of three angles of a triangle is 2 : 3 : 4, then determine the circular value of the greatest angle .

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23. The length of a radius of a circle is 28 cm. Determine the circuclar value of angle subtended by an arc of 5.5 cm length at the centre of of this circle.

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24. The ratio of two angles subtended by two arcs of unequal lenghts at the centre is 5:2 and if the sexagesimal value of the second angle is 30°,

then detrmine the sexagesimal value and the circular value of the first angle.

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25. A rotating ray makes an angle $-5\frac{1}{12}\pi$. Determine the direction in which the ray has comletely rotated and there after what more angle it has produced.

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26. Reme has drawn an isosceles triangle ABC whose included angle of two equal sides is $\angle ABC = 45^\circ$, the bisector of angleABC intersects the side AC at the poin

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27. The base BC of the equilateral triangle ABC is extended upto the point E so that CE =BC. By joining A, E, determine the circular values of the angles of ΔAEC.

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28. If the measures of three of a quadrilateral are $\frac{\pi}{3}, \frac{5\pi}{6}$ and 90° respectively, determine the sexagesimal and circular value of fourth angle.

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29. The angles of a triangle are successively in equal difference. If the number of degrees in the greatest angle be same as the number of grades in the least one . Find the angles in degrees.

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30. Find the times between 4 o'clock and 5o'clock when the angle between the minute-hand and hour-hand is $\frac{8\pi}{15}$ radians.

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Exercise 1

1. The length of an are which subtends $22\frac{1^\circ}{2}$ at the centre of a circle of radius $17.6\ \text{cm}\left(\pi = \frac{22}{7}\right)$ is

A. $5\frac{32}{35}$ cm

B. $5\frac{31}{35}$ cm

C. $5\frac{32}{33}$ cm

D. $6\frac{32}{35}$ cm

Answer: D

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2. State true or false: Two angles are in the ratio 5:3 and their difference is 100^g. The greatest angle is 225°.

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3. The angles of a triangle are in the ratio 2:5:3. Find the circular measure of the greatest angle.

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4. The circumference of a circle is 176 cm, find its radius.

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5. The angles of a quadrilateral are $x^\circ, 60^\circ, 60^\circ$ and $\frac{5\pi^c}{6}$, Find x.

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6. The sum of two angles is 60 grades and their difference is 16°. Find the angles in degrees and radians.

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7. One angle of a triangle is 60° and the second is $\frac{\pi}{4}$ radian. Express the third angle in centesimal measure.

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8. 13214"=

A. $3^\circ 40' 24$

B. $3^\circ 40' 14$

C. $3^\circ 40' 40$

D. $3^\circ 24' 14$

Answer: B

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9. $\frac{5\pi^c}{9} =$

A. 100°

B. 75°

C. 80°

D. 90°

Answer: A

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10. $120^g =$

A. $\frac{\pi}{5}$

B. $\frac{2\pi}{5}$

C. $\frac{3\pi}{5}$

D. $\frac{4\pi}{5}$

Answer: C

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11. The length of an are which subtends $22\frac{1^{\circ}}{2}$ at the centre of a circle of radius 17.6 cm $\left(\pi = \frac{22}{7}\right)$ is

A. $5\frac{32}{35}$ cm

B. $5\frac{31}{35}$ cm

C. $5\frac{32}{33}$ cm

D. $6\frac{32}{35}$ cm

Answer: D

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12. Two angles are in the ratio 5:3 and their difference is 100^g. The greatest angle is 225°.

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13. The mesure of an angle subtended at the centre of circle by an are to its radius is one _____

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14. The circular measure of angle $\theta =$ _____

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15. The measure of the angle subtended at the centre of a circle by a quarter of its circumference _____ degrees.

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16. The angles of a triangle are in the ratio 2:5:3. Find the circular measure of the greatest angle.

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17. The circumference of a circle is 176 cm, find its radius.

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18. The angles of a quadrilateral are $x^\circ, 60^\circ, 60^\circ$ and $\frac{5\pi^c}{6}$, Find x.

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19. Find the circular measure of an interior angle of a regular n-gon.

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20. Express in degrees and minutes and also in greades all the angles of an isosceles trangle in which each of the angles at the base is twelve times the vertical angle.

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21. The sum of two angle is 152°. If the number of degrees in one is equal to the number of grades in the other. Find the circular measure of the angles.

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22. The sum and difference of two angles are $135^\circ \text{ and } \frac{\pi}{12}$ respectively. Find the circular measures of the angles.

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23. The number of degress, grades and radians in an angle are respectively D,G and R. Prove that $\frac{D}{90} = \frac{G}{100} = \frac{2R}{\pi}$.

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24. The sum of two angles is 60 grades and their difference is 16°. Find the angles in degrees and radians.

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25. One angle of a triangle is 60° and the second is $\frac{\pi}{4}$ radian. Express the third angle in centesimal measure.

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26. The angle of a triangle are in the ratio of 4:3:5. Find the circular measure of the least angle.

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27. Express 60° in radian.

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28. The four angles of a quadrilateral are in A.P. The greatest angle is twice the least angle. Find the circular measure of the least angle.

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29. The angles of a pentagon are a-2b,a-b,a,a+b,a+2b and its greatest angle is thrice the least. Find the angles in radians.

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30. Find the time between 5 and 6 o'clock when the angle between the two hands of a clock is 48°.

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31. Find the time between 1 P.M. and 2P.M. when the angle between the hands of a clock is $186\frac{2}{3}$ grades.

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32. Express in circular mesure the angle between the two hands of a clock at 9.30 AM.

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33. Express 135° in radian.

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34. Find the ratio of the radii of two circles at the centres of which two ares of the same length subtend angles of $60^\circ \text{ and } 75^\circ$. " "[WBSF-1953]

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35. Express in circular measure an angle of a regular polygon of sides 10.

[U.U.-1950]

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36. Express 72° in radian.

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37. Determine the angle in degree which an are of length 11 cm will produce at the centre of a circle with radius 12 cm.

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38. The length of a minute-hand of a clock is 10 cm . How much distance will its extremity move in 20 minutes ?

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