Exercise 5.5

GF86M

Multiple choice questions

1. The area of triangle formed by the points $(-5,0)$, $(0,-5)$ and $(5,0)$ is
   (A) 0 sq.units (B) 25 sq.units (C) 5 sq.units (D) none of these
2. A man walks near a wall, such that the distance between him and the wall is 10 units. Consider the wall to be the Y axis. The path travelled by the man is
   (A) $x = 10$ (B) $y = 10$ (C) $x = 0$ (D) $y = 0$
3. The straight line given by the equation $x = 11$ is
   (A) parallel to X axis (B) parallel to Y axis
   (C) passing through the origin (D) passing through the point $(0,11)$
4. If $(5,7)$, $(3,p)$ and $(6,6)$ are collinear, then the value of p is
   (A) 3 (B) 6 (C) 9 (D) 12
5. The point of intersection of $3x - y = 4$ and $x + y = 8$ is
   (A) $(5,3)$ (B) $(2,4)$ (C) $(3,5)$ (D) $(4,4)$
6. The slope of the line joining $(12,3)$, $(4,a)$ is $\frac{1}{8}$. The value of 'a' is
   (A) 1 (B) 4 (C) -5 (D) 2
7. The slope of the line which is perpendicular to a line joining the points $(0,0)$ and $(-8,8)$ is
   (A) -1 (B) 1 (C) $\frac{1}{3}$ (D) -8
8. If slope of the line PQ is $\frac{1}{\sqrt{3}}$ then slope of the perpendicular bisector of PQ is
   (A) $\sqrt{3}$ (B) $-\sqrt{3}$ (C) $\frac{1}{\sqrt{3}}$ (D) 0
9. If A is a point on the Y axis whose ordinate is 8 and B is a point on the X axis whose abscissae is 5 then the equation of the line AB is
   (A) $8x + 5y = 40$ (B) $8x - 5y = 40$ (C) $x = 8$ (D) $y = 5$
10. The equation of a line passing through the origin and perpendicular to the line $7x - 3y + 4 = 0$ is
    (A) $7x - 3y + 4 = 0$ (B) $3x - 7y + 4 = 0$ (C) $3x + 7y = 0$ (D) $7x - 3y = 0$

LIVEWORKSHEETS

11. Consider four straight lines

(i) l_1; $3y = 4x + 5$ (ii) l_2; $4y = 3x - 1$ (iii) l_3; $4y + 3x = 7$ (iv) l_4; $4x + 3y = 2$

Which of the following statement is true ?

(A) l_1 and l_2 are perpendicular (B) l_1 and l_4 are parallel

(C) l_2 and l_4 are perpendicular (D) l_2 and l_3 are parallel

12. A straight line has equation $8y = 4x + 21$. Which of the following is true

(A) The slope is 0.5 and the y intercept is 2.6

(B) The slope is 5 and the y intercept is 1.6

(C) The slope is 0.5 and the y intercept is 1.6

(D) The slope is 5 and the y intercept is 2.6

13. When proving that a quadrilateral is a trapezium, it is necessary to show

(A) Two sides are parallel. (B) Two parallel and two non-parallel sides.

(C) Opposite sides are parallel. (D) All sides are of equal length.

14. When proving that a quadrilateral is a parallelogram by using slopes you must find

(A) The slopes of two sides (B) The slopes of two pair of opposite sides

(C) The lengths of all sides (D) Both the lengths and slopes of two sides

15. (2, 1) is the point of intersection of two lines.

(A) $x - y - 3 = 0$; $3x - y - 7 = 0$ (B) $x + y = 3$; $3x + y = 7$

(C) $3x + y = 3$; $x + y = 7$ (D) $x + 3y - 3 = 0$; $x - y - 7 = 0$

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LIVEWORKSHEETS

Exercise 6.5

Multiple choice questions

1. The value of $\sin^2\theta + \dfrac{1}{1+\tan^2\theta}$ is equal to

   (A) $\tan^2\theta$ (B) 1 (C) $\cot^2\theta$ (D) 0

2. $\tan\theta\operatorname{cosec}^2\theta - \tan\theta$ is equal to

   (A) $\sec\theta$ (B) $\cot^2\theta$ (C) $\sin\theta$ (D) $\cot\theta$

3. If $(\sin\alpha + \operatorname{cosec}\alpha)^2 + (\cos\alpha + \sec\alpha)^2 = k + \tan^2\alpha + \cot^2\alpha$, then the value of k is equal to

   (A) 9 (B) 7 (C) 5 (D) 3

4. If $\sin\theta + \cos\theta = a$ and $\sec\theta + \operatorname{cosec}\theta = b$, then the value of $b(a^2-1)$ is equal to

   (A) $2a$ (B) $3a$ (C) 0 (D) $2ab$

5. If $5x = \sec\theta$ and $\dfrac{5}{x} = \tan\theta$, then $x^2 - \dfrac{1}{x^2}$ is equal to

   (A) 25 (B) $\dfrac{1}{25}$ (C) 5 (D) 1

6. If $\sin\theta = \cos\theta$, then $2\tan^2\theta + \sin^2\theta - 1$ is equal to

   (A) $\dfrac{-3}{2}$ (B) $\dfrac{3}{2}$ (C) $\dfrac{2}{3}$ (D) $\dfrac{-2}{3}$

7. If $x = a\tan\theta$ and $y = b\sec\theta$ then

   (A) $\dfrac{y^2}{b^2} - \dfrac{x^2}{a^2} = 1$ (B) $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1$ (C) $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ (D) $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 0$

8. $(1 + \tan\theta + \sec\theta)(1 + \cot\theta - \operatorname{cosec}\theta)$ is equal to

   (A) 0 (B) 1 (C) 2 (D) -1

9. $a\cot\theta + b\operatorname{cosec}\theta = p$ and $b\cot\theta + a\operatorname{cosec}\theta = q$ then $p^2 - q^2$ is equal to

   (A) $a^2 - b^2$ (B) $b^2 - a^2$ (C) $a^2 + b^2$ (D) $b - a$

LIVEWORKSHEETS

10. If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, then the angle of elevation of the sun has measure

(A) 45° (B) 30° (C) 90° (D) 60°

11. The electric pole subtends an angle of 30° at a point on the same level as its foot. At a second point 'b' metres above the first, the depression of the foot of the pole is 60°. The height of the pole (in metres) is equal to

(A) $\sqrt{3}\ b$ (B) $\frac{b}{3}$ (C) $\frac{b}{2}$ (D) $\frac{b}{\sqrt{3}}$

12. A tower is 60 m heigh. Its shadow is x metres shorter when the sun's altitude is 45° than when it has been 30°, then x is equal to

(A) 41.92 m (B) 43.92 m (C) 43 m (D) 45.6 m

13. The angle of depression of the top and bottom of 20 m tall building from the top of a multistoried building are 30° and 60° respectively. The height of the multistoried building and the distance between two buildings (in metres) is

(A) 20, $10\sqrt{3}$ (B) 30, $5\sqrt{3}$ (C) 20, 10 (D) 30, $10\sqrt{3}$

14. Two persons are standing 'x' metres apart from each other and the height of the first person is double that of the other. If from the middle point of the line joining their feet an observer finds the angular elevations of their tops to be complementary, then the height of the shorter person (in metres) is

(A) $\sqrt{2}\ x$ (B) $\frac{x}{2\sqrt{2}}$ (C) $\frac{x}{\sqrt{2}}$ (D) $2x$

LIVEWORKSHEETS

Exercise 7.5

Multiple choice questions

1. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is
   (A) 60π cm^2 (B) 68π cm^2 (C) 120π cm^2 (D) 136π cm^2
2. If two solid hemispheres of same base radius r units are joined together along their bases, then curved surface area of this new solid is
   (A) $4\pi r^2$ sq. units (B) $6\pi r^2$ sq. units (C) $3\pi r^2$ sq. units (D) $8\pi r^2$ sq. units
3. The height of a right circular cone whose radius is 5 cm and slant height is 13 cm will be
   (A) 12 cm (B) 10 cm (C) 13 cm (D) 5 cm
4. If the radius of the base of a right circular cylinder is halved keeping the same height, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is
   (A) 1:2 (B) 1:4 (C) 1:6 (D) 1:8
5. The total surface area of a cylinder whose radius is $\frac{1}{3}$ of its height is
   (A) $\frac{9\pi h^2}{8}$ sq.units (B) $24\pi h^2$ sq.units (C) $\frac{8\pi h^2}{9}$ sq.units (D) $\frac{56\pi h^2}{9}$ sq.units
6. In a hollow cylinder, the sum of the external and internal radii is 14 cm and the width is 4 cm. If its height is 20 cm, the volume of the material in it is
   (A) 5600π cm^3 (B) 1120π cm^3 (C) 56π cm^3 (D) 3600π cm^3
7. If the radius of the base of a cone is tripled and the height is doubled then the volume is
   (A) made 6 times (B) made 18 times (C) made 12 times (D) unchanged
8. The total surface area of a hemi-sphere is how much times the square of its radius.
   (A) π (B) 4π (C) 3π (D) 2π
9. A solid sphere of radius x cm is melted and cast into a shape of a solid cone of same radius. The height of the cone is
   (A) $3x$ cm (B) x cm (C) $4x$ cm (D) $2x$ cm

LIVEWORKSHEETS

10. A frustum of a right circular cone is of height 16cm with radii of its ends as 8cm and 20cm. Then, the volume of the frustum is

(A) 3328π cm^3 (B) 3228π cm^3 (C) 3240π cm^3 (D) 3340π cm^3

11. A shuttle cock used for playing badminton has the shape of the combination of

(A) a cylinder and a sphere (B) a hemisphere and a cone

(C) a sphere and a cone (D) frustum of a cone and a hemisphere

12. A spherical ball of radius r_1 units is melted to make 8 new identical balls each of radius r_2 units. Then $r_1 : r_2$ is

(A) 2:1 (B) 1:2 (C) 4:1 (D) 1:4

13. The volume (in cm^3) of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1 cm and height 5 cm is

(A) $\frac{4}{3}\pi$ (B) $\frac{10}{3}\pi$ (C) 5π (D) $\frac{20}{3}\pi$

14. The height and radius of the cone of which the frustum is a part are h_1 units and r_1 units respectively. Height of the frustum is h_2 units and radius of the smaller base is r_2 units. If $h_2 : h_1 = 1 : 2$ then $r_2 : r_1$ is

(A) 1 : 3 (B) 1 : 2 (C) 2 : 1 (D) 3 : 1

15. The ratio of the volumes of a cylinder, a cone and a sphere, if each has the same diameter and same height is

(A) 1:2:3 (B) 2:1:3 (C) 1:3:2 (D) 3:1:2

LIVEWORKSHEETS

Exercise 8.5

S6ENC

Multiple choice questions

1. Which of the following is not a measure of dispersion?
   (A) Range (B) Standard deviation
   (C) Arithmetic mean (D) Variance
2. The range of the data 8, 8, 8, 8, 8. . . 8 is
   (A) 0 (B) 1 (C) 8 (D) 3
3. The sum of all deviations of the data from its mean is
   (A) Always positive (B) always negative (C) zero (D) non-zero integer
4. The mean of 100 observations is 40 and their standard deviation is 3. The sum of squares of all observations is
   (A) 40000 (B) 160900 (C) 160000 (D) 30000
5. Variance of first 20 natural numbers is
   (A) 32.25 (B) 44.25 (C) 33.25 (D) 30
6. The standard deviation of a data is 3. If each value is multiplied by 5 then the new variance is
   (A) 3 (B) 15 (C) 5 (D) 225
7. If the standard deviation of x, y, z is p then the standard deviation of $3x+5$, $3y+5$, $3z+5$ is
   (A) $3p+5$ (B) $3p$ (C) $p+5$ (D) $9p+15$
8. If the mean and coefficient of variation of a data are 4 and 87.5% then the standard deviation is
   (A) 3.5 (B) 3 (C) 4.5 (D) 2.5
9. Which of the following is incorrect?
   (A) $P(A)>1$ (B) $0 \leq P(A) \leq 1$ (C) $P(\phi)=0$ (D) $P(A)+P(\bar{A})=1$

LIVEWORKSHEETS

10. The probability a red marble selected at random from a jar containing p red, q blue and r green marbles is

(A) $\frac{q}{p+q+r}$ (B) $\frac{p}{p+q+r}$ (C) $\frac{p+q}{p+q+r}$ (D) $\frac{p+r}{p+q+r}$

11. A page is selected at random from a book. The probability that the digit at units place of the page number chosen is less than 7 is

(A) $\frac{3}{10}$ (B) $\frac{7}{10}$ (C) $\frac{3}{9}$ (D) $\frac{7}{9}$

12. The probability of getting a job for a person is $\frac{x}{3}$. If the probability of not getting the job is $\frac{2}{3}$ then the value of x is

(A) 2 (B) 1 (C) 3 (D) 1.5

13. Kamalam went to play a lucky draw contest. 135 tickets of the lucky draw were sold. If the probability of Kamalam winning is $\frac{1}{9}$, then the number of tickets bought by Kamalam is

(A) 5 (B) 10 (C) 15 (D) 20

14. If a letter is chosen at random from the English alphabets $\{a,b,...,z\}$, then the probability that the letter chosen precedes x

(A) $\frac{12}{13}$ (B) $\frac{1}{13}$ (C) $\frac{23}{26}$ (D) $\frac{3}{26}$

15. A purse contains 10 notes of ₹2000, 15 notes of ₹500, and 25 notes of ₹200. One note is drawn at random. What is the probability that the note is either a ₹500 note or ₹200 note?

(A) $\frac{1}{5}$ (B) $\frac{3}{10}$ (C) $\frac{2}{3}$ (D) $\frac{4}{5}$

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