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| **CLASS REVISION TEST-03****MATHEMATICS** |
| **EX.NO**  |  | **AD.NO** |  | **GRADE**  | **X** |
| **DATE**  | **04/12/19** | **MARKS** | **80** | **TIME** | **3 Hrs** |

 **SECTION - A**

**I. Choose the correct answer:- 10x1=10**

1. If K(0,5), L(-5,0), M(3,0) and N(8,5) are the vertices of a quadrilateral, then the quadrilateral KLMN is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 a. rectangle b. square c. parallelogram d. trapezium

2. If A(a, 0) and B(0, b), then which of the following is the midpoint of AB?

 a. b. (a, b) c. d.

3. Area of triangle ABC is x sq units. If A(0,2), B(2,0) and C(-3,0), then x is \_\_\_\_\_\_\_\_\_\_\_.

 a. 5 b. 1 c. 6 d.

4. If secA – tanA = 5, then sec2A – tan2A = \_\_\_\_\_\_\_\_\_\_\_.

 a. 1/5 b. 25 c. -5 d. 1

5. + 1 = \_\_\_\_\_\_\_\_\_\_\_.

 a. sec2 b. sin2 c. cos2 d. tan2

6. If cos A = sinB, then cot(A + B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 a. 0 b. 1 c. 2 d. -1

7. If sin + cosec = 2, then sin2 + cosec2 is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

 a. ½ b. 1 c. 2 d. ¾

8. Find the height of the given PQR with respect to base PQ.

 

 a. 6 cm b. 5 cm c. 4 cm d. 3 cm

9. A kite is flying at a height of 100 m above a level ground. The length of the string attached to the kite is 200 m. Find the angle made by the string with the ground.

 a. 60° b. 30° c.45° d. none of these

10. The tops of two towers 20 m and 30 m high are joined by a string. The string makes an angle of 30° with the horizontal. Find the length of the string.

 a. 10 m b. 15 m c. 20 m d. 30 m

**II. Answer the following questions:- 10x1=10**

1. Find the point on the X-axis which is equidistant from the points A(7, 6) and (-3, 4).

2. Find the relation between *x* and *y* if the points A(2, 1), B(*x,y*) and C(7, 5) are collinear.

3. If the point C(*k*, 4) divides the join of points A(2, 6) and B(5, 1) in the ratio 2 : 3, then find the value of *k*.

4. Find the value of .

 5. Prove that: cot 12° cot 38° cot 52° cot 60° cot 78° = .

6. Evaluate:- sin2 19° + sin2 71° .

7. What happens to value of cos when increases from 0° to 90°?

8. The angle of elevation of the top of a tower from a point on the ground which is 30 m away from the foot of the tower is 45°. Then find height of the tower (in metres).

9. If a tower 30m high, casts a shadow 10 m long on the ground, then what is the angle of elevation of the Sun?

10. From the top of a cliff 20m high, the angle of elevation of the top of a tower is found to be equal to the angle of depression on the foot of the tower. Then find height of the tower.

**SECTION – B**

**II. Answer the following questions:- 6x2=12**

21. If the point *P*(*m*, 3) lies on the line segment joining the points A and B(2, 8), find the value of *m*.

22. The coordinates of houses of Sonu and Labhoo are (7,3) and (4, 3) respectively. Coordinates of their school is(2, 2). If both leave their house at the same time in the morning and also reach school in time then who travels faster?

23. Prove that: 2 cos2 + = 2.

24. Expert the value of sin 45° and cos 45° geometrically.

25. In figure AB is a 6 m high pole and CD is a ladder inclined at an angle of 60° to the horizontal and reaches up to a point D of pole. If AD = 2.54 m, find the length of the ladder. (Use = 1.73).

 

26. If A, B and C are the angles of the ABC, then show that sin = cos .

**SECTION – C**

**IV. Answer the following questions:- 8x3=24**

27. Three vertices of a parallelogram ABCD are A(1, 2), B(4, 3) and C(6, 6). Find the coordinates of vertex D.

28. If a b 0, prove that the points (a, a2), (b, b2) (c, c) will not be collinear.

29. If A(-4, 8), B(-3, -4), C(0, -5) and D(5, 6) are the vertices of a quadrilateral ABCD, find its area.

30. Evaluate the following:

31. Prove the identity: + =

32. Prove that the identity sin2A + cos2A = 1

33. The angle of elevation of the top of a vertical tower from a point on the ground is 60°. From another point 10 m vertically above the first, its angle of elevation is 30°. Find the height of the tower.

34. The angle of elevation of the top Q of a vertical tower PQ from a point X on the ground is 60°. From a point Y, 40 m vertically above X, the angle of elevation of the top Q of tower is 45°. Find the height of the tower PQ and the distance PX.

**SECTION – D**

**V. Answer the following questions:- 6x4=24**

35. If figure, the vertices of ABC are A(4, 6), B(1, 5) and C(7, 2). A line-segment DE is drawn to intersect the sides AB and AC at D and E respectively such that = = . Calculate the area of and compare it with area of .

 36. The line segment joining the points P(2, 1) and Q(5, -8) is trisected at the points A and B such that A is neared to P. Find the coordinates of A and B. If A also lies on the line 2*x* – *y* + *k* = 0, find the value of *k*.

37. If = *n* and = *m*, then show that (*m*2 + *n*2) cos2 A = *n*2.

38. In the given figure, is right-angled at D and BD : DC is 2 : 3.Show that = .

 

39. If a cos + b sin = *m* and a sin - b cos = *n*, prove that *a*2 + *b*2 = *m*2 + *n*2.

40. Evaluate + 2 sin2 38° sec2 52° - sin2 45° + tan 17° tan 60° tan 73°.