CHRIST HIGH SCHOOL

CHRIST HIGH SCHOOL PLOT 5, CHS STREET, KM 32, ABUJA-KEFFI ROAD UKE, NASARAWA STATE

SS 2 PAPER I GENERAL MATHEMATICS, SECOND TERM EXAMINATION 2024/2025 ACADEMIC SESSION

SUBJECT: GENERAL MATHEMATICS PAPER I
CLASS: SS 2
TIME: 2 Hours

NAME……

CANDIDATE'S ADMISSION NO.

INSTRUCTION

Write your name and number in the space provided on your answer booklet.

The paper I is objective test (50 questions)

Use **HB pencil** throughout and shade properly.

Calculator and Mathematical tables may be used in any question.

Think carefully before you shade the answer spaces; erase completely any answer you wish to change.

Now answer all the following questions.

FOR EXAMINER'S USE	
Total Score:	+

PAPER I

1. A bag contains 3 red and 2 white identical balls. If 2 balls are picked at random from the bag, one after the other and with replacement, find the probability that they are of different coloures.

A. $\frac{36}{625}$
B. $\frac{16}{625}$
C. $\frac{12}{25}$
D. $\frac{13}{25}$
E. $\frac{3}{5}$

2. If $\cos\theta = 0.8$ and $0° < \theta < 90°$, find $\sin\theta$.

A. $\frac{3}{5}$
B. $\frac{4}{5}$
C. $\frac{6}{5}$
D. $\frac{1}{5}$
E. $\frac{2}{5}$

3. Without tables or calculator, find the value of $\frac{\sin 30°}{\cos 60°} + \frac{\cos 35°}{\sin 55°}$.

A. 1
B. 4
C. 5
D. 2
E. 3

4. The negation of the statements 'Ibadan is the largest town in Nigeria'

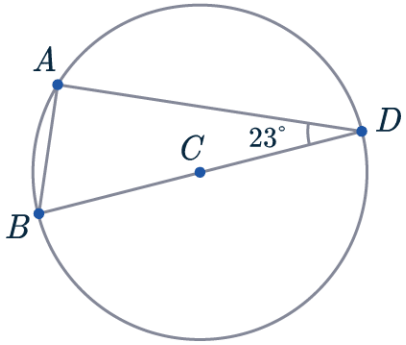
A. Ibadan is not largest town in Nigeria
B. Ibadan is the largest town in Accra
C. Ibadan is the largest town in Nigeria
D. Ibadan is the largest state in Nigeria
E. Ibadan maybe the largest town in Nigeria

5. The equation of the line parallel to y= -4x + 2 passing through (2,3) is

A. y - 4x + 11=0
B. y +4x – 23 =0
C. y +4x + 11=0
D. y+4x -11 = 0

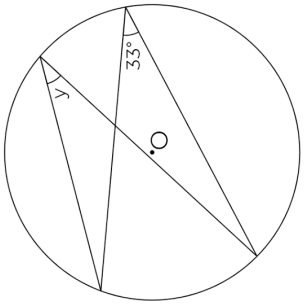
E. y+4x - 2= 0

6. In the diagram below, BD is the diameter of the circle with centre C and $A\hat{D}B = 23°$. Find $A\hat{B}D$

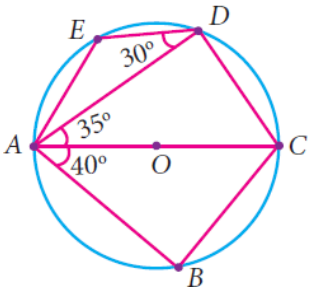


A. 90°
B. 23°
C. 67°
D. 113°
E. 27°

7. Find the value of y in the diagram below.



A. 27°
B. 33°
C. 147°
D. 57°
E. None of the above



Use the diagram above to answer 8 to 10.

8. Find $A\hat{B}C$.

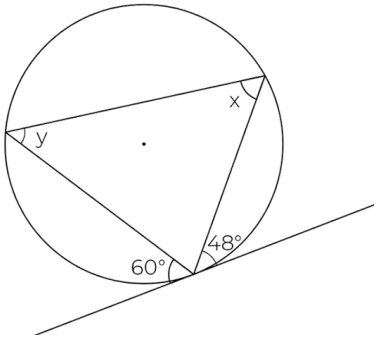
A. $40°$
B. $90°$
C. $50°$
D. $140°$
E. $100°$

9. Find $A\hat{E}D$

A. $55°$
B. $125°$
C. $30°$
D. $35°$
E. $90°$

10. Find $B\hat{C}D$

A. $60°$
B. $70°$
C. $85°$
D. $105°$
E. $100°$



Use the diagram above to answer questions 11 and 12.

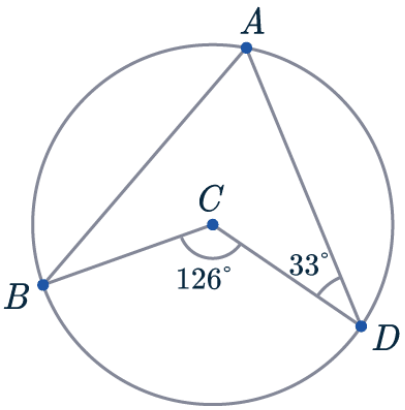
11. Find x

A. $60°$
B. $48°$
C. $12°$
D. $108°$
E. $90°$

12. Find y.

A. $60°$

B. $48°$
C. $12°$
D. $108°$
E. $90°$



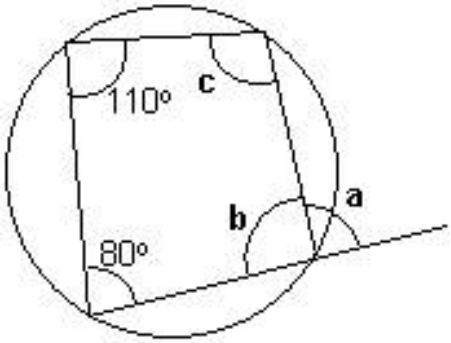
Use the diagram above to answer questions 13 and 14

13. What is the value of $B\hat{A}D$?

A. $54°$
B. $126°$
C. $234°$
D. $63°$
E. $33°$

14. What is the value of $A\hat{B}C$?

A. $30°$
B. $33°$
C. $63°$
D. $54°$
E. $47°$



Use the diagram above to answer questions 15 to 17.

15. What is the value of the angle labeled a.

A. 80°
B. 110°
C. 70°
D. 90°
E. 100°

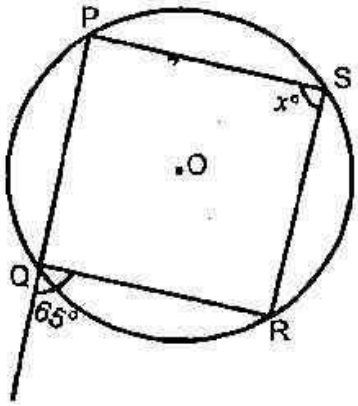
16. What is the value of the angle labeled b?

A. 80°
B. 110°
C. 70°
D. 90°
E. 100°

17. What is the value of the angle labeled c.

A. 80°
B. 110°
C. 70°
D. 90°
E. 100°

18. Find the value of the marked angle in the diagram below.



A. 115°
B. 65°
C. 25°
D. 155°
E. 35

19. The gradient of the equation 3y= 4x+12 is

A. $\frac{-3}{4}$

B. $\frac{3}{4}$

C. $\frac{-4}{3}$

D. $\frac{4}{3}$

E. 4

20. Find the distance between (2,3) and (4,7)

A. $\sqrt{3} units$

B. $\sqrt{4}\, units$

C. $\sqrt{5}\, units$

D. $\sqrt{6}\, units$

E. $\sqrt{7}\, units$

21. A chord of length 6cm is drawn in a circle of radius 5cm. Find the distance of the chord from the centre of the circle.

A. 2.5cm

B. 3.0cm

C. 3.5cm

D. 4.0cm

E. 4.5cm

22. Calculate the mid-point of the line joining (8,-3) and (-2,3)

A. (-3,0)

B. (0,5)

C. (3,0)

D. (0,3)

E. (5,0)

23. The bearing of a point X from a point Y is 074°. What is the bearing of Y from X?

A. 106°

B. 148°

C. 164°

D. 254°

E. 230°

24. A fair die is tossed once. What is the probability of obtaining neither 5 nor 2?

A. $\frac{5}{3}$

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

C. $\frac{1}{2}$

D. $\frac{1}{3}$

E. $\frac{1}{5}$

25. A point X is on the bearing of 342° from a point Y. what is the bearing of Y from X?

A. 342°

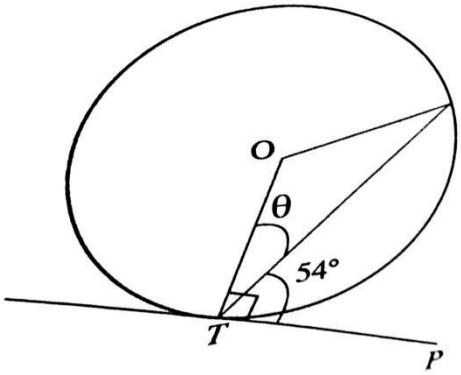
B. 252°

C. 198°

D. 162°

E. 152°

26. Calculate the value of θ in the diagram below



Calculate the obtuse angle QRS.

A. 34°

B. 35°

C. 36°

D. 37°

E. 38°

27. Given that $\sin\theta = \frac{5}{13}$ and θ is acute, find $\cot\theta$

A. $\frac{12}{5}$

B. $\frac{12}{15}$

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

D. $\frac{1}{5}$

E. 3

28. Find the gradient of the line joining (3, 2) and (7, 10)

A. 2

B. -2

C. 4

D. -4

E. 3

29. Determine the equation of the line with gradient $\frac{-7}{2}$ and 2 as the intercept on y – axis

A. y= $\frac{-7x}{2}$ + 2

B. y=7x -2

C. y=3x +2

D. y= $\frac{-3x}{2}$ +2

E. $y = -3x + 2$

30. Given a straight line passing through the points P(2, 4) and Q(5, 6), find the angle of the slope.

A. 33.69°

B. 34.69°

C. 35.7°

D. 35.69°

E. 35°

31. Given that Cos 30°=Sin 60°=$\frac{\sqrt{3}}{2}$ and Sin 30°=Cos 60°=$\frac{1}{2}$, evaluate $\frac{\tan 60° - 1}{1 - \tan 30°}$

A. $\sqrt{3}$

B. $\sqrt{2} - 3$

C. $\sqrt{2} - 2$

D. -2

E. -3

32. If Sin x= Cos 50°, then x is

A. 40°

B. 45°

C. 50°

D. 90°

E. 30°

33. If $\tan x = \frac{3}{4}$, $0° < x < 90°$, evaluate $\frac{\cos x}{2 \sin x}$

A. $\frac{8}{3}$

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

C. $\frac{4}{3}$

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

E. $\frac{1}{3}$

34. A man's eye level is 1.7 m above the horizontal ground and 13 m from a vertical pole. If the pole is 8.3 m high, calculate, correct to the nearest degree, the angle of elevation of the top of the pole from his eyes.

A. 33°
B. 32°
C. 27°
D. 26°
E. 25°

35. From the top of a cliff, the angle of depression of a boat on the sea is 60°. If the top of the cliff is 25m above the sea level, calculate the horizontal distance from the bottom of the cliff to the boat.

A. $50\sqrt{3}$m
B. $25\sqrt{3}m$
C. $\frac{25\sqrt{3}}{3}m$
D. $\frac{25}{3}m$
E. $25m$

36. The angle of elevation of the top of a tree from a point 27m away and on the same horizontal ground as the foot of the tree is 30°. Find the height of the tree.

A. 27m
B. $13.5\sqrt{3}m$
C. $13.5\sqrt{2}m$
D. $9\sqrt{3}m$
E. $13\sqrt{3}m$

37. How far is a chord from the centre of a circle of radius 15 cm if it subtends an angle of 23° at the circumference of the circle?

A. $15 \sin 23$
B. $23 \sin 15$
C. $15 \cos 23$
D. $15 \tan 23$
E. $23\ cos\, 15$

38. A chord 12 cm long is 8 cm from the centre of a circle. Find the radius of the circle.

A. 20cm
B. 5 cm
C. 10cm
D. 20cm

E. 14 cm

39. Given that $X = 30^0$, evaluate $y = 3cos\, x + 2sinx$

A. $\sqrt{3} - 2$

B. $2 - \sqrt{3}$

C. $\frac{\sqrt{3}-2}{2}$

D. $\frac{\sqrt{3}+2}{2}$

E. $\sqrt{3} + 2$

40. John was facing S 35°E. If he turned 90° in the anticlockwise direction, find his new direction.

A. N55°E

B. S 55°E

C. S 35°W

D. N 35°W

E. N 125°E

41. Find the value of θ if $\sin\theta = \cos(\theta + 30^0)$

A. 30^0

B. 40^0

C. 50^0

D. 60^0

E. 70^0

42. Express $3x - 2 < 10 + x < 2 + 5x$ in the form of $a < x < b$, where a and b are both integers.

A. $6 < x < 2$

B. $-6 < x < 2$

C. $2 < x < 6$

D. $-2 < x < 6$

E. $2 < x < 4$

43. The statements K ^ L is said to be true when

A. The result is contradiction

B. k is false and L is false

C. K is true and L is false

D. The result is tautology

E. K is true and L is true

44. Find the gradient of the line passing through the points $(\frac{1}{2}, -\frac{1}{3})$ and $(3, \frac{2}{3})$

A. $\frac{7}{2}$

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

C. $\frac{2}{7}$

D. $\frac{2}{5}$

E. $\frac{7}{3}$

45. The probability of a boy passing English and Mathematics tests are x and y respectively. Find the probability of the boy failing both test

A. $1 - (x - y) + xy$

B. $1 - (x + y) - xy$

C. $1 - (x + y) + xy$

D. $1 - (x - y) - xy$

E. $1 + (x + y) + xy$

46. A jet left a town and travelled 96km on the bearing of 045^0. It then flies south until it was 96km from the starting point. How far south did it go?

A. 134.76km

B. 134.70km

C. 135.76km

D. 135.70km

E. 136.67km

47. In ΔXYZ, $|YZ| = 6\ cm$. $Y\hat{X}Z = 60^0$ and XYZ is a right angle. Calculate $|XZ|$ in cm, leaving your answer in surd form.

A. $2\sqrt{3}$

B. $4\sqrt{3}$

C. $6\sqrt{3}$

D. $8\sqrt{3}$

E. $12\sqrt{3}$

48. The angle of elevation of the top of a tower from a point on the ground which is 36cm away from the foot of the tower is 30^0. Calculator the height of the tower.

A. 62.35m

B. 20.78m

C. 18.00m

D. 10.39m

E. 09.44m

49. Find the range of values of x for which $\frac{x+2}{4} - \frac{x+1}{3} > \frac{1}{2}$

A. $x > 4$

B. $x > -4$
C. $x < 4$
D. $x < -4$
E. $x \leq 4$

50. A point X is on the bearing 342^0 from a point Y. What is the bearing of Y from X ?

A. 342^0
B. 252^0
C. 196^0
D. 162^0
E. 152^0