JAMB

Mathematics

Past questions

Paper Type: Objective (PT. 1-5)

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JAMB MATHEMATICS PAST QUESTIONS (PT.1)

TYPE: D

1. Which Mathematics Question Paper Type is given to you?

A. Type A

B. Type B

C. Type C

D. Type D

2. If $2_q3_5 = 77_8$, find q

A. 2

B. 1

C. 4

D. 0

3. Simplify $\dfrac{3\frac{2}{3} \times \frac{5}{6} \times \frac{2}{3}}{\frac{11}{15} \times \frac{3}{4} \times \frac{2}{27}}$

A. $5\frac{2}{3}$

B. 30

C. $4\frac{1}{3}$

D. 50

4. A man invested ₦5,000 for 9 months at 4%. What is the simple interest?

A. ₦150

B. ₦220

C. ₦130

D. ₦250

5. If the numbers M, N, Q are in the ratio 5:4:3, find the value of $\dfrac{2N-Q}{M}$

A. 2

B. 3

C. 1

D. 4

6. Simplify $\left(\frac{16}{81}\right)^{\frac{1}{4}} \div \left(\frac{9}{16}\right)^{-\frac{1}{2}}$

A. 23

B. 12

C. 89

D. 13

7. If $\log_3 18 + \log_3 3 - \log3\ x = 3$, find x.

A. 1

B. 2

C. 0

D. 3

8. Rationalize $\frac{2-\sqrt{5}}{3-\sqrt{5}}$

A. $\frac{1-\sqrt{5}}{2}$

B. $\frac{1-\sqrt{5}}{4}$

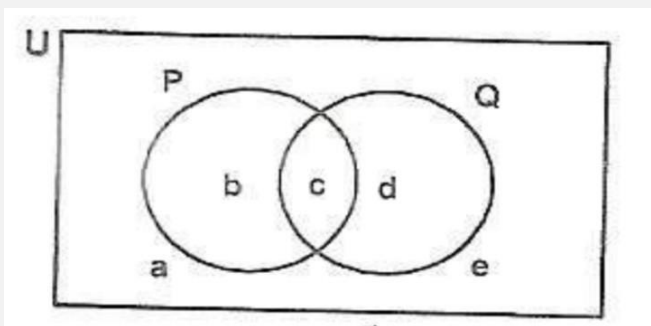C. $\frac{\sqrt{5}-1}{2}$

D. $\frac{1+\sqrt{5}}{4}$

9. Simplify $\left[\sqrt{2}+\frac{1}{\sqrt{3}}\right]\left[\sqrt{2}-\frac{1}{\sqrt{3}}\right]$

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

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

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

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

10. From the Venn diagram above, the complement of the set P ∩ Q is given by _____

A. {a, b, d, e}

B. {b, d}

C. {a, e}

D. {c}

11. Raial has 7 different posters to be hanged in her bedroom, living room and kitchen. Assuming she has plans to place at least a poster in each of the 3 rooms, how many choices does she have?

A. 49

B. 170

C. 21

D. 210

12. Make R the subject of the formula if T = $\frac{KR^2+M}{3}$

A. $\sqrt{\frac{3T-K}{M}}$

B. $\sqrt{\frac{3T+M}{K}}$

C. $\sqrt{\frac{3T+K}{M}}$

D. $\sqrt{\frac{3T-K}{K}}$

13. Find the remainder when $x^3 - 2x^2 + 3x - 3$ is divided by $x^2 + 1$

A. 2x - 1

B. x + 3

C. 2x + 1

D. x − 3

14. Factorize completely $9y^2 - 16x^2$

A. $(3y - 2x)(3y + 4x)$

B. $(3y + 4x)(3y + 4x)$

C. $(3y + 2x)(3y - 4x)$

D. $(3y - 4x)(3y + 4x)$

15. Solve for x and y respectively in the simultaneous equations -2x - 5y = 3, x + 3y = 0
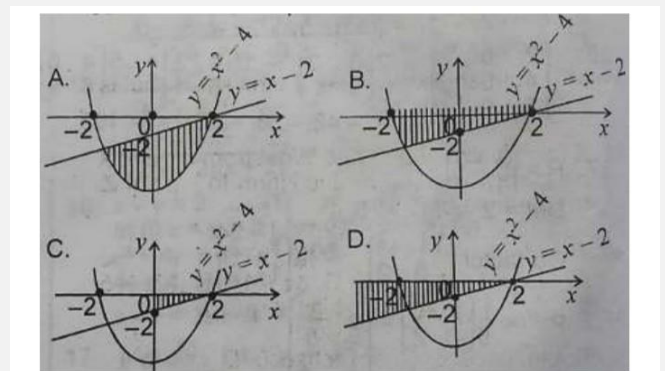
A. -3, -9

B. 9, -3

C. -9,3

D. 3, -9

16. If x varies directly as square root of y and x = 81 when y = 9, Find x when y = $1\frac{7}{9}$

A. $20\frac{1}{4}$

B. 27

C. $2\frac{1}{4}$

D. 36

17. T varies inversely as the cube of R. When R = 3, T = $\frac{2}{81}$, find T when R = 2

A. $\frac{1}{18}$

B. $\frac{1}{12}$

C. $\frac{1}{24}$

D. $\frac{1}{6}$

18. Which of the following diagrams represents the solution of the inequalities y ≤ x − 2 and y ≥ x^2 − 4 ?

19. Solve the inequality -6(x + 3) ≤ 4(x - 2)

A. $x \leq 2$

B. $x \geq -1$

C. $x \geq -2$

D. $x \leq -1$

20. Solve the inequality $x2 + 2x > 15$.

A. $x < -3$ or $x > 5$

B. $-5 < x < 3$

C. $x < 3$ or $x > 5$

D. $x > 3$ or $x < -5$

21. Find the sum of the first 18 terms of the series 3, 6, 9..., 36.

A. 505

B. 513

C. 433

D. 635

22. The second term of a geometric series is 4 while the fourth term is 16. Find the sum of the first five terms.

A. 60

B. 62

C. 54

D. 64

23. A binary operation $\oplus$ on real numbers is defined by $x \oplus y = xy + x + y$ for two real numbers x and y. Find the value of $3 \oplus -\frac{2}{3}$

A. $-\frac{1}{2}$

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

C. -1

D. 2

24. If $\begin{vmatrix} 2 & 3 \\ 5 & 3x \end{vmatrix} = \begin{vmatrix} 4 & 1 \\ 1 & 2x \end{vmatrix}$, find the value of x.

A. -6

B. 6

C. -12

D. 12

25. Evaluate $\begin{vmatrix} 4 & 2 & -1 \\ 2 & 3 & -1 \\ -1 & 1 & 3 \end{vmatrix}$

A. 25

B. 45

C. 15

D. 55

26. The inverse of matrix N = $\begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}$ is _____

A. $\frac{1}{5}\begin{bmatrix} 2 & 1 \\ 3 & 4 \end{bmatrix}$

B. $\frac{1}{5}\begin{bmatrix} 4 & -3 \\ -1 & 2 \end{bmatrix}$

C. $\frac{1}{5}\begin{bmatrix} 2 & -1 \\ -3 & 4 \end{bmatrix}$

D. $\frac{1}{5}\begin{bmatrix} 4 & 1 \\ 3 & 2 \end{bmatrix}$

27. What is the size of each interior angle of a 12-sided regular polygon?

A. 120°

B. 150°

C. 30°

D. 180°

28. A circle of perimeter 28cm is opened to form a square. What is the maximum possible area of the square?

A. 56 cm2

B. 49 cm2

C. 98 cm2

D. 28 cm2

29. A chord of circle of radius 7 cm is 5 cm from the centre of the maximum possible area of the square?

A. 4√6 cm2

B. 3√6 cm2

C. 6√6 cm2

D. 2√6 cm2

30. A solid metal cube of side 3 cm is placed in a rectangular tank of dimension 3, 4 and 5 cm. What volume of water can the tank now hold?

A. 48 cm^3

B. 33 cm^3

C. 60 cm^3

D. 27 cm^3

31. The perpendicular bisector of a line **XY** is the locus of a point

A. whose distance from **X** is always twice its distance from **Y**

B. whose distance from **Y** is always twice its distance from **X**

C. which moves on the line **XY**

D. which is equidistant from the points X and y

32. The midpoint of P(x, y) and Q(8, 6). Find x and y. midpoint = (5, 8).

A. (2, 10)
B. (2, 8)
C. (2, 12)
D. (2, 6)

33. Find the equation of a line perpendicular to line $2y = 5x + 4$ which passes through (4, 2).

A. $5y - 2x - 18 = 0$
B. $5y + 2x - 18 = 0$
C. $5y - 2x + 18 = 0$
D. $5y + 2x - 2 = 0$

34. In a right-angled triangle, if tan θ = 34. What is $cos\theta - sin\theta$?

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

35. A man walks 100 m due West from a point X to Y, he then walks 100 m due North to a point Z. Find the bearing of X from Z.

A. 195°
B. 135°
C. 225°
D. 045°

36. The derivatives of $(2x + 1)(3x + 1)$ is

A. 12x + 1
B. 6x + 5
C. 6x + 1
D. 12x + 5

37. Find the derivative of $\frac{\sin \theta}{\cos \theta}$

A. $sec2\ \theta$
B. $tan\ \theta cosec\ \theta$
C. $cosec\theta sec\ \theta$
D. $cosec2\theta$

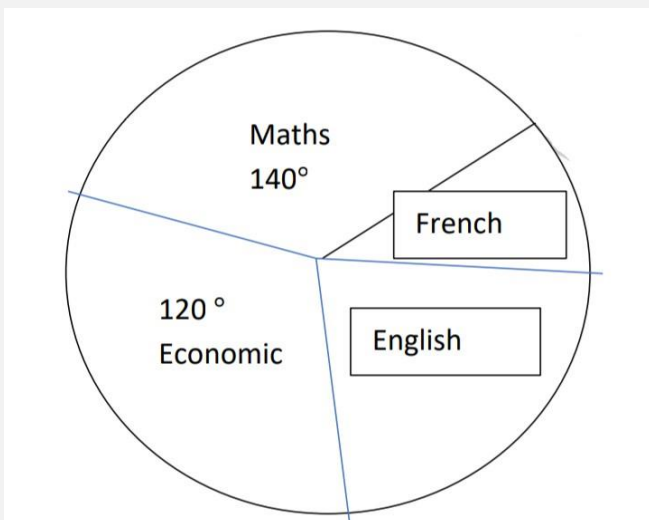38. Find the value of x at the minimum point of the curve $y = x^3 + x^2 - x + 1$

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

B. $-\frac{1}{3}$

C. 1

D. 1

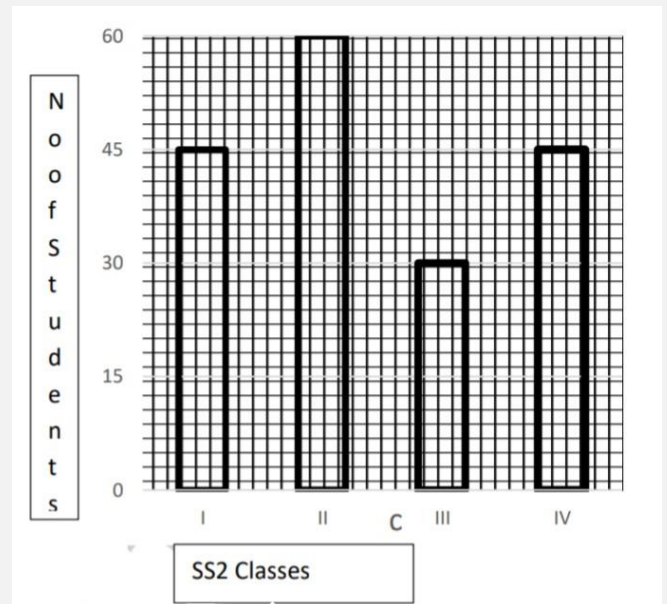39. Evaluate $\int_0^1 (3 - 2x)\, dx$

A. 3

B. 5

C. 2

D. 6

40. Find $\int \cos 4\, x dx$

A. $\frac{3}{4} \sin 4x + k$

B. $-\frac{1}{4} \sin 4x + k$

C. $-\frac{3}{4} \sin 4x + k$

D. $\frac{1}{4} \sin 4x + k$

41. The pie chart shows the distribution of courses offered by students. What percentage of the students offer English?

A. 30%

B. 25%

C. 35%

D. 20%

SS2 Classes

42. The bar chart above shows the distribution of SS2 students in a school. Find the total number of students.

A. 180

B. 135

C. 210

D. 105

Maths 140°

French

120° Economic

English

43. The sum of four consecutive integers is 34. Find the least of these numbers.

A. 7
B. 6
C. 8
D. 5

Number	0	1	2	3	5
Frequency	1	4	8	2	5

44. From the table above, find the median and range of the data respectively.

A. (8,5)
B. (3, 5)
C. (5, 8)
D. (5, 3)

Class Interval	0-2	3-5	6-8	9-11
Frequency	3	2	5	3

45. Find the mode of the above distribution.

A. 9
B. 8

C. 10
D. 7

Class Interval	3-5	6-8	9-11
Frequency	2	2	2

46. Find the standard deviation of the above distribution.

A. √5
B. √3
C. √7
D. √2

47. In how many was can the letters of the word ELATION be arranged?

A. 6!
B. 7!
C. 5!
D. 8!

48. In how many ways can five people sit round a circular table?

A. 24
B. 60
C. 12

D. 120

49. Find the probability that a number picked at random from the set (43, 44, 45, ..., 60) is a prime number.

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

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

C. $\frac{2}{9}$

D. $\frac{7}{9}$

50. In a class of 60 students, 30 offer Physics and 40 offer Chemistry. If a student is picked at random from the class, what is the profitability that the student offers both Physics and Chemistry?

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

B. $\frac{1}{4}$

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

D. $\frac{1}{6}$

JAMB MATHEMATICS PAST QUESTIONS (PT.2)

TYPE: GREEN

1. Which Question Paper Type of Mathematics as indicated above is given to you?

A. Type Green
B. Type Purple
C. Type Red
D. Type Yellow

2. Convert 72_6 to a number in base three.

A. 2211
B. 2121
C. 1212
D. 1122

3. Simplify $\dfrac{2\frac{2}{3} \times 1\frac{1}{2}}{4\frac{4}{5}}$

A. 114
B. 116
C. 56
D. 45

4. Evaluate $\frac{21}{9}$ to 3 significant figures

A. 2.30
B. 2.31
C. 2.32
D. 2.33

5. A man earns ₦3,500 per month out of which he spends 15% on his children's education. If he spends additional ₦1,950 on food, how much does he have left?

A. ₦525
B. ₦1,025
C. ₦1,950
D. ₦2,975

6. If $27^{x + 2} \div 9^{x + 1} = 3^{2x}$, find x.

A. 3
B. 4
C. 5
D. 6

7. If $\log_3 x^2 = -8$, what is x?

A. 13

B. 19

C. 127

D. 181

8. Simplify $(\sqrt{6} + 2)^2 - (\sqrt{6} + 2)^2$

A. $2\sqrt{6}$

B. $4\sqrt{6}$

C. $8\sqrt{6}$

D. $16\sqrt{6}$

9. If P is a set of all prime factors of 30 and Q is a set of all factors of 18 less than 10, find P ∩ Q

A. {3}

B. {2,3}

C. {2,3,5}

D. {1,2}

10. In a class of 46 students, 22 play football and 26 play volleyball. If 3 students play both games, how many plays neither?

A. 1

B. 2

C. 3

D. 4

11. Make 'n' the subject of the formula if $w = \frac{v(2+cn)}{1-cn}$

A. $\frac{1}{c}\left(\frac{w-2v}{v+w}\right)$

B. $\frac{1}{c}\left(\frac{w-2v}{v-w}\right)$

C. $\frac{1}{c}\left(\frac{w+2v}{v-w}\right)$

D. $\frac{1}{c}\left(\frac{w+2v}{v+w}\right)$

12. Find the remainder when $2x^3 - 11x^2 + 8x - 1$ is divided by $x + 3$

A. -871

B. -781

C. -187

D. -178

13. Solve for x and y in the equations below

$$x^2 - y^2 = 4$$
$$x + y = 2$$

A. x = 0, y = -2

B. x = 0, y = 2

C. x = 2, y = 0

D. x = -2, y = 0

14. If y varies directly as $\sqrt{n}$ and y = 4 when n = 4, find y when n = $1\frac{7}{9}$

A. $\sqrt{17}$

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

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

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

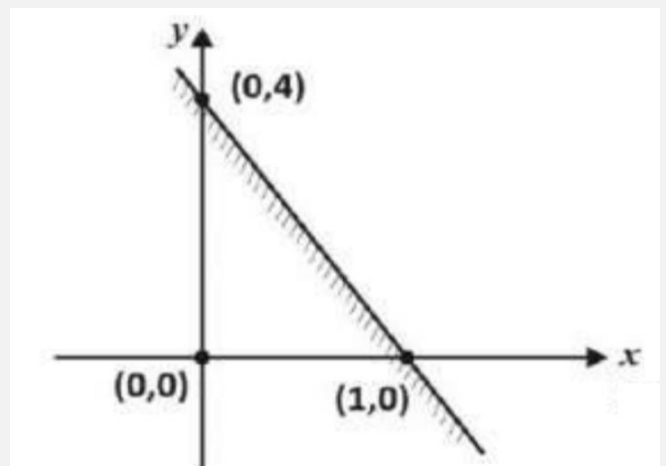15. U is inversely proportional to the cube of V and U = 81 when V = 2. Find U when V = 3

A. 24

B. 27

C. 32

D. 36

16. The value of y for which $\frac{1}{5}y + \frac{1}{5} < \frac{1}{2}y + \frac{2}{5}$ is _____

A. $y > \frac{2}{3}$

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

C. $y > -\frac{2}{3}$

D. $y < -\frac{2}{3}$

17. Find the range of values of m which satisfy (m -3)(m - 4) < 0

A. 2 < m < 5

B. -3 < m < 4

C. 3 < m < 4

D. -4 < m < 3

18. The shaded region above is represented by the equation _____

A. y ≤ 4x + 2

B. y ≥ 4x + 2

C. y ≤ -4x + 4

D. y ≤ 4x + 4

19. The nth term of a sequence is n² - 6n - 4. Find the sum of the 3rd and 4th terms.

A. 24

B. 23

C. -24

D. -25

20. The sum to infinity of a geometric progression is $-\frac{1}{10}$ and the first term is $-\frac{1}{8}$. Find the common ratio of the progression.

A. $-\frac{1}{5}$

B. $-\frac{1}{4}$

C. $-\frac{1}{3}$

D. $-\frac{1}{2}$

21. The binary operation * is defined on the set of integers such that p * q = pq + p - q. Find 2 * (3 * 4)

A. 11

B. 13

C. 15

D. 22

22. The binary operation on the set of real numbers is defined by m*n = mn2 for all m, n ∈ R. If the identity element is 2, find the inverse of -5
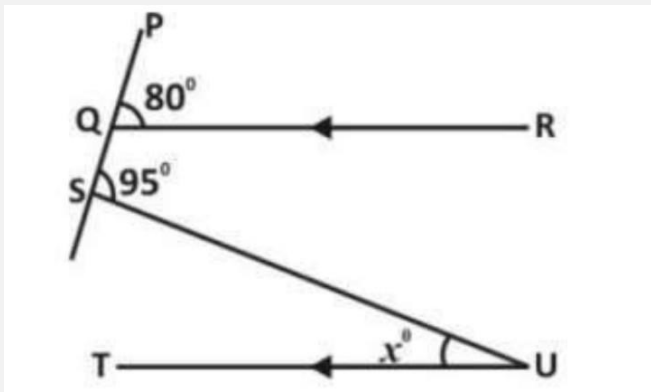
A. −45

B. −25

C. 4

D. 5

23. If $\begin{vmatrix} 5 & 3 \\ x & 2 \end{vmatrix} = \begin{vmatrix} 3 & 5 \\ 4 & 5 \end{vmatrix}$, find the value of x.

A. 3

B. 4

C. 5

D. 7

24. Given that 13 is a unit matrix of order 3, find $|1_3|$

A. -1

B. 0

C. 1

D. 2

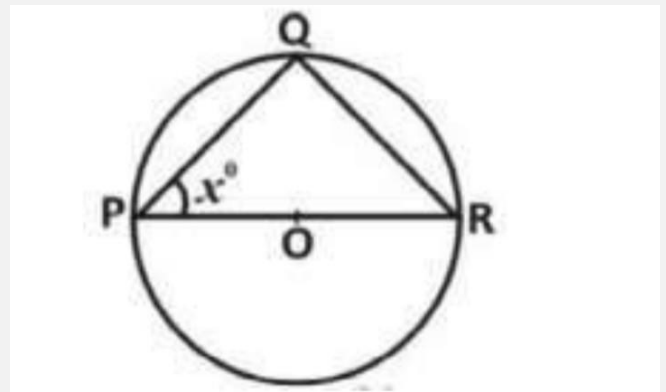**25.** In diagram above, **QR//TU, < PQR = 80o** and < PSU= 95o. Calculate **< SUT.**

A. 15⁰

B. 25⁰

C. 30⁰

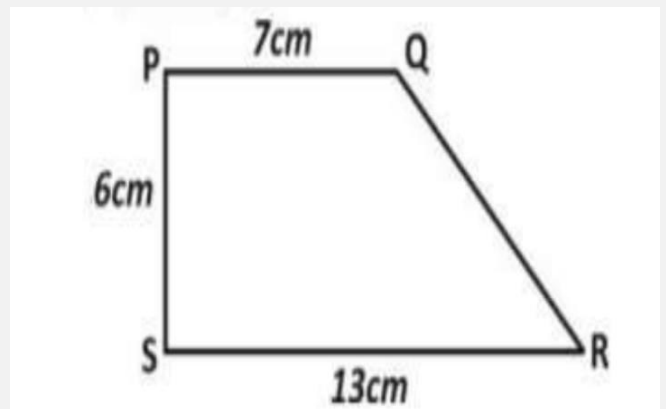D. 80⁰

A. X⁰

B. $(90 - x)°$

C. $(90 + x)°$

D. $(180 - x)°$

26. The angles of a polygon are given by x, 2x, 3x, 4x and 5x respectively. Find the value of x.

A. 24⁰

B. 30⁰

C. 33⁰

D. 36⁰

28. Find the area of the trapezium above.

A. 91 cm²

B. 78 cm²

C. 60 cm²

D. 19 cm²

27. In the diagram below, **PQR** is a circle centre O. If < **QPR** is **XO**, find < **QRP**.

29. A circular arc subtends angle 150° at the centre of a circle of

radius 12 cm. Calculate the area of the sector of the arc?

A. 30 п cm²

B. 60 п cm²

C. 120 п cm²

D. 150 п cm²

30. Calculate the volume of a cuboid of length 0.76 cm, breadth 2.6 cm and height 0.82 cm.

A. 3.92 cm³

B. 2.13 cm³

C. 1.97 cm³

D. 1.62 cm³

31. The locus of a point equidistant from the intersection of lines $3x - 7y + 7 = 0 \ and \ 4x - 6y + 1 = 0$ is a _____

A. line parallel to $7x + 13y + 8= 0$

B. circle

C. semicircle

D. bisector of the line $7x + 13y + 8 = 0$

32. The gradient of the straight line joining the points P(5, -7) and Q(-2, -3) is _____

A. 12

B. 25

C. −47

D. −23

33. The distance between the point (4, 3) and the intersection of $y = 2x + 4 \ and \ y = 7 - x$ is _____

A. √13

B. 3√2

C. √26

D. 10√5

34. Find the equation of the line through the points (-2, 1) and $(-\frac{1}{2}, 4)$

A. y = 2x - 3

B. y = 2x + 5

C. y = 3x - 2

D. y = 2x + 1

35. If angle θ is 135⁰, evaluate cos θ

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

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

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

D. $-\frac{1}{2}$

36. A man stands on a tree 150cm high and sees a boat at an angle of depression of 74°. Find the distance of the boat from the base of the tree.

A. 52 cm

B. 43 cm

C. 40 cm

D. 15 cm

37. If y = x2 - $\frac{1}{x}$, find $\frac{dy}{dx}$

A. 2x - $\frac{1}{x^2}$

B. 2x + x²

C. 2x - x²

D. 2x + $\frac{1}{x^2}$

38. Find $\frac{dy}{dx}$ if $y = \cos x$

A. sin x
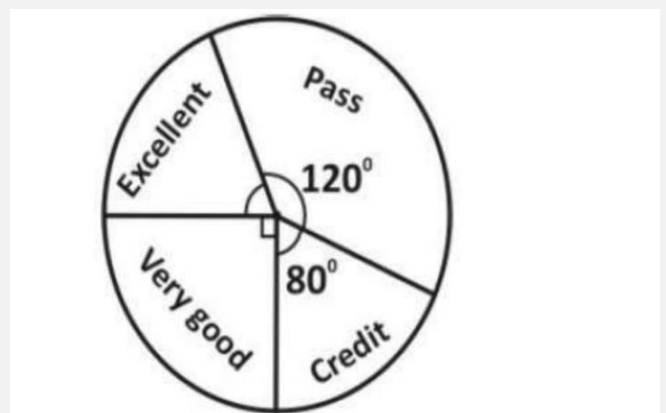
B. -sin x

C. tan x

D. -tan x

39. Evaluate $\int_1^2 (x^2 - 4x)$

A. $\frac{11}{3}$
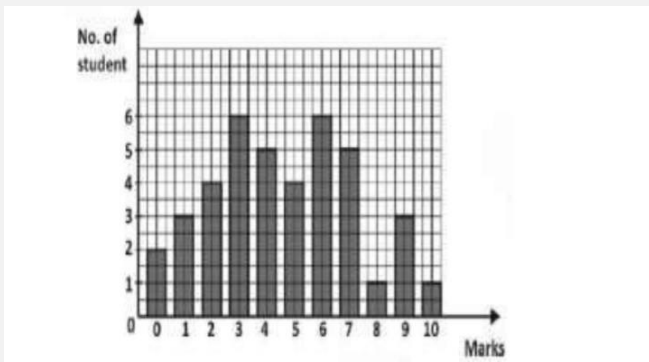
B. $\frac{3}{11}$

C. $-\frac{3}{11}$

D. $-\frac{11}{3}$

40. Evaluate $\int_0^{\frac{\pi}{4}} \sec^2 \theta d\theta$

A. 1

B. 2

C. 3

D. 4

41. The grades of 36 students in a class test are as shown in the pie chart above. How many students have excellent?

A. 12

B. 9

C. 8

D. 7

Marks

42. The bar chart above shows the distribution of marks in a class test. If the pass mark is 5, what percentage of students failed the test?

A. 10%

B. 20%

C. 50%

D. 60%

43. The mean of seven numbers is 96. If an eighth number is added, the mean becomes 112. Find the eighth number.

A. 126

B. 180

C. 216

D. 224

44. Find the median of 2, 3, 7, 3, 4, 5, 8, 9, 9, 4, 5, 3, 4, 2, 4 and 5

A. 9

B. 8

C. 7

D. 4

45. Find the range of 4, 9, 6, 3, 2, 8, 10 and 11

A. 11

B. 9

C. 8

D. 4

46. Find the standard deviation of 2, 3, 8, 10 and 12

A. 3.9

B. 4.9

C. 5.9

D. 6.9

47. Evaluate $^{n+1}C_{n-2}$ If n =15

A. 3630

B. 3360

C. 1120

D. 560

48. In how many ways can the letters of the word TOTALITY be arranged?

A. 6720

B. 6270

C. 6207

D. 6027

49. The probability that a student passes a physics test is $\frac{2}{3}$. If he takes three physics tests, what is the probability that he passes two of the tests?

A. $\frac{4}{9}$

B. $\frac{6}{9}$

C. $\frac{4}{27}$

D. $\frac{2}{27}$

50. The probabilities that a man and his wife live for 80 years are $\frac{2}{3}$ and $\frac{3}{5}$ respectively. Find the probability that at least one of them will live up to 80 years.

A. $\frac{2}{15}$

B. $\frac{3}{15}$

C. $\frac{7}{15}$

D. $\frac{13}{15}$

CHECK YOUR ANSWERS

*Would you like to get or confirm the **correct answer(s) with explanations** to any or all of these questions?*

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JAMB MATHEMATICS PAST QUESTIONS (PT.3)

TYPE: U

1. Which Mathematics Question Paper Type is given to you?

A. Type D
B. Type I
C. Type B
D. Type U

2. Convert 27_{10} to another number in base three.

A. 1100_3
B. 1000_3
C. 1001_3
D. 1010_3

3. 3 girls share a number of apples in the ration 5:3:2. If the highest share is 40 apples, find the smallest share.

A. 16
B. 38
C. 36
D. 24

4. Evaluate $\frac{1.25 \times 0.025}{0.05}$, correct to 1 decimal place.

A. 6.3
B. 0.5
C. 0.6
D. 6.2

5. Calculate the time taken for ₦3000 to earn ₦600 if invested at 8% simple interest.

A. $3\frac{1}{2}$ years
B. $1\frac{1}{2}$ years
C. $2\frac{1}{2}$ years
D. 3 years

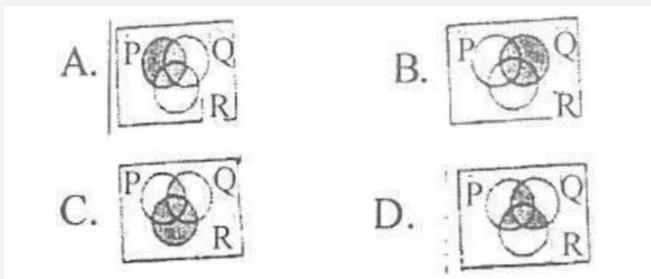6. Simplify $3 - 5n91 - n \times 27n+1$

A. 32
B. 33
C. 35
D. 3

7. If $\log_{10} 4 = 0.6021$, evaluate $\log_{10} 4^{\frac{1}{3}}$

A. 1.8063

B. 0.2007

C. 0.3011

D. 0.9021

8. Simplify $\dfrac{\sqrt{5}(\sqrt{147}-\sqrt{12}}{\sqrt{15}}$

A. $\dfrac{1}{9}$

B. 9

C. 5

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

9. P, Q and R are subsets of the universal set U. The Venn diagram showing the relationship (P∩Q)∪R is _____

10. if $P = \{x: x \text{ is odd}, -1 < x \le 20\}$ and Q is $\{y: y \text{ is prime}, -2 < y \le 25$, find P ∩ Q.

A. {3, 5, 7, 11, 13, 17, 19}

B. {2, 3, 5, 7, 11, 13, 17, 19}

C. {3, 5, 7, 11, 17, 19}

D. {3, 5, 11, 13, 17, 19}

11. If $S = \sqrt{t^2 - 4t + 4}$ find t in terms of S.

A. S - 2

B. $S^2 + 2$

C. S^2 - 2

D. S + 2

12. If $x - 4$ is a factor of $x^2 - x - k$, then k is _____

A. 20

B. 2

C. 4

D. 12

13. The remainder when $6p^3 - p^2 - 47p + 30$ is divided by $p - 3$ is _____

A. 63

B. 18

C. 21

D. 42

14. P varies jointly as m and u, and varies inversely as q. Given that p = 4, m = 3 and u = 2 and q = 1, find the value of p when m = 6, u = 4 and q = $\frac{8}{5}$
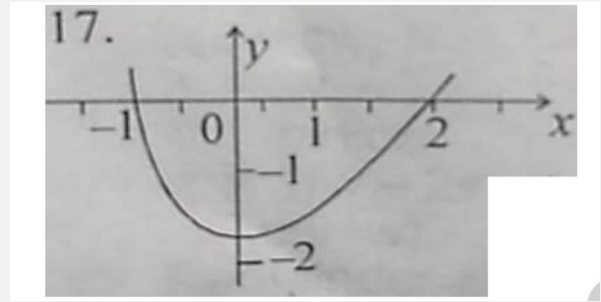
A. 10

B. $\frac{288}{5}$

C. $\frac{128}{5}$

D. 15

15. If r varies inversely as the square root of s and t, how does s vary with r and t?

A. s varies directly as r2 and t2

B. s varies directly as r and t

C. s varies inversely as r and t2

D. s varies inversely as r2 and t

16. Evaluate 3(x + 2) > 6(x + 3)

A. x < -4

B. x > 4

C. x < 4

D. x > -4

17. The graph above is correctly represented by _____

A. $y = x2 - x - 1$

B. $y = x2 + x - 2$

C. $y = x2 - x - 2$

D. $y = x2 - 3x + 2$

18. Solve for x: $|x - 2| < 3$

A. $-1 < x < 5$

B. $x < 1$

C. $x < 5$

D. $-1 < x < 3$

19. If the sum of the first two terms of a G.P. is 3, and the sum of the second and the third terms is -6, find the sum of the first term and the common ratio.

A. -5

B. 5

C. -2

D. -3

20. The nth term of the progression $\frac{4}{2}, \frac{7}{3}, \frac{10}{4}, \frac{13}{5}, \dots$ is _____

A. $\frac{3n+1}{n-1}$

B. $\frac{3n+1}{n+1}$

C. $\frac{1-3n}{n+1}$

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

21. If a binary operation * is defined by x * y = x + 2y, find 2 * (3 * 4)

A. 14

B. 26

C. 24

D. 16

22. If $P = \begin{bmatrix} 5 & 3 \\ 2 & 1 \end{bmatrix}$ and $Q = \begin{bmatrix} 4 & 2 \\ 3 & 5 \end{bmatrix}$ find 2P + Q.

A. $\begin{bmatrix} 7 & 7 \\ 8 & 14 \end{bmatrix}$

B. $\begin{bmatrix} 8 & 14 \\ 7 & 7 \end{bmatrix}$

C. $\begin{bmatrix} 7 & 7 \\ 14 & 8 \end{bmatrix}$

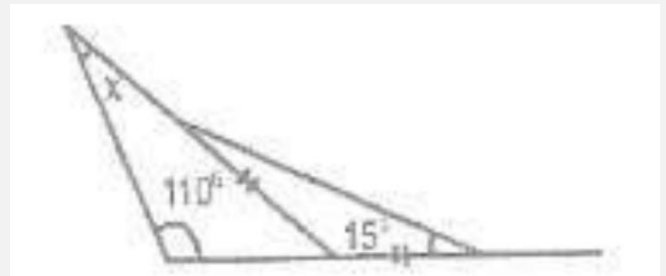D. $\begin{bmatrix} 14 & 8 \\ 7 & 7 \end{bmatrix}$

23. Find the inverse $\begin{bmatrix} 5 & 3 \\ 6 & 4 \end{bmatrix}$

A. $\begin{bmatrix} 2 & \frac{3}{2} \\ -3 & -\frac{5}{2} \end{bmatrix}$

B. $\begin{bmatrix} 2 & \frac{3}{2} \\ -3 & \frac{5}{2} \end{bmatrix}$

C. $\begin{bmatrix} 2 & -\frac{3}{2} \\ -3 & -\frac{5}{2} \end{bmatrix}$

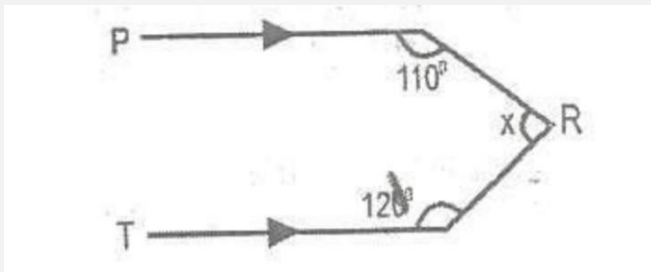D. $\begin{bmatrix} 2 & -\frac{3}{2} \\ -3 & \frac{5}{2} \end{bmatrix}$

24. In the diagram above, find the value of x.

A. 45°

B. 15°

C. 30°

D. 40°

25. The value of x in the figure above is _____

A. 70°

B. 130°

C. 110°

D. 100°

26. If the angles of a quadrilateral are $(3y+10)°$, $(2y+30)°$, $(y+20)°$ and $4y°$, find the value of y.

A. 66°

B. 12°

C. 30°

D. 42°

27. A square tile has side 30cm. How many of these tiles will cover a rectangular floor of length 7.2m and width 4.2m?

A. 720

B. 336

C. 420

D. 576

28. Find the length of a chord which subtends an angle of 90° at the centre of a circle whose radius is 8cm.

A. $8\sqrt{3}$ cm

B. 4 cm

C. 8 cm

D. $8\sqrt{2}$ cm

29. A chord of a circle subtends an angle of 120° at the centre of a circle of diameter $4\sqrt{3}$cm. Calculate the area of the major sector.

A. 32п cm²

B. 4п cm²

C. 8п cm²

D. 16п cm²

30. The locus of the points which is equidistant from the line PQ forms a _____

A. perpendicular line to PQ

B. circle centre P

C. circle centre Q

D. pair of parallel lines to PQ

31. If the mid-point of the line PQ is (2,3) and the point P is (-2,1). Find the coordinate of the point Q.

A. (8, 6)

B. (5, 6)

C. (0, 4)

D. (6, 5)

32. Find the equation of the perpendicular bisector of the line joining P (2, 3) to Q(-5, 1).

A. $8y + 14x + 13 = 0$

B. $8y - 14x + 13 = 0$

C. $8y - 14x - 13 = 0$

D. $8y + 14x - 13 = 0$

33. In triangle PQR, q= 8cm, r=6cm and cos p = $\frac{1}{12}$

A. $\sqrt{108}$ cm

B. $\sqrt{9}$ cm

C. $\sqrt{92}$ cm

D. 10 cm

34. If tan θ = $\frac{3}{4}$, find the value of sin θ + cos θ

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

B. $1\frac{2}{3}$

C. $1\frac{3}{5}$

D. $1\frac{2}{5}$

35. If y = (2x +2)3, find $\frac{dy}{dx}$

A. $3(2x + 2)$

B. $6(2x + 2)^2$

C. $3(2x + 2)^2$

D. $6(2x+2)$

36. if y = xsin x, find $\frac{dy}{dx}$

A. cos x + xsin x

B. sin x + xcos x

C. sin x − cos x

D. cos x− xsin x

37. The radius of a circle is increasing at the rate of 0.02cms⁻¹. Find the rate at which the area is increasing when the radius of the circle is 7cm.
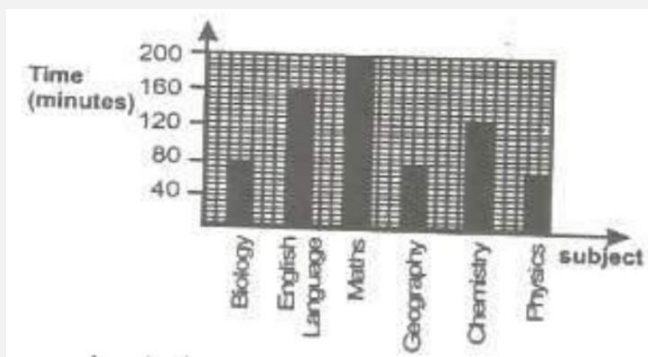
A. 0.35 cm²S⁻¹

B. 0.88cm²S⁻¹

C. 0.75 cm²S⁻¹

D. 0.55 cm²S⁻¹

38. Integrate $\frac{1+x}{x^3}\,dx$

A. $2x^2 - \frac{1}{x} + k$

B. $-\frac{1}{2x^2} - \frac{1}{x} + k$

C. $-\frac{x^2}{2} - \frac{1}{x} + k$

D. $x^2 - \frac{1}{x} + k$
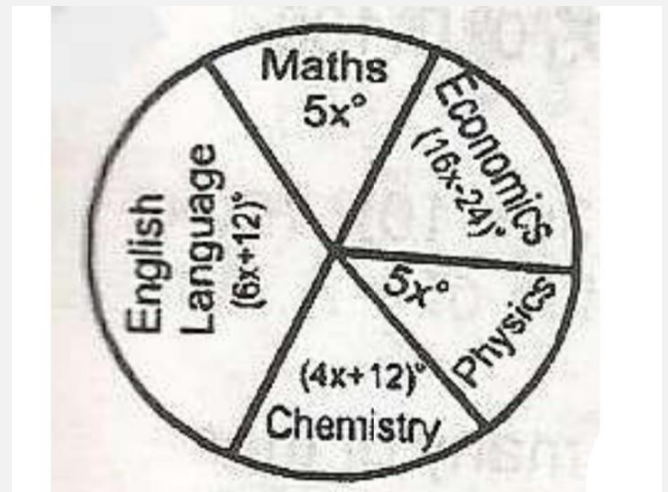
39. Evaluate $\int_0^{\frac{\pi}{2}} \sin x \, dx$

A. -2

B. 2

C. 1

D. -1

40. The bar chart above shows the allotment of time (in minutes)

per week for selected subjects in a certain school. What is the total time allocated to the six subjects per week?

A. 960 mins

B. 200 mins

C. 460 mins

D. 720 mins

41. The pie chart above shows the statistical distribution of 80 students in five subjects in an examination. Calculate how many student offer Mathematics.

A. 50

B. 20

C. 30

D. 40

42. Find the mean of t + 2, 2t - 4, 3t + 2 and 2t.

A. 2t + 1

B. t

C. t + 1

D. 2t

43. The mean of seven numbers is 10. If six of the numbers are 2, 4, 8, 14, 16 and 18, find the mode.

A. 14

B. 2

C. 6

D. 8

Age	20	25	30	35	40	45
No of people	3	5	1	1	2	5

44. Calculate the median age of the frequency distribution in the table above

A. 35

B. 20

C. 25

D. 30

45. If the variance of 3 + x, 6, 4, x and $7 - x$ is 4 and the mean is 5, find the standard deviation.

A. 3

B. √2

C. √3

D. 2

Score	3	4	5	6	7	8	9	10
Freq.	1	0	7	5	2	3	1	1

46. The table above shows the scores of 20 students in further mathematics test. What is the range of the distribution?

A. 3

B. 10

C. 7

D. 6

47. In how many ways can a student select 2 subjects from 5 subjects?

A. $\frac{5!}{2!3!}$

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

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

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

48. In how many ways can 3 seats be occupied if 5 people are willing to sit?

A. 5

B. 120

C. 60

D. 20

49. What is the probability that an integer x (1≤x≤25) chosen at random is divisible by both 2 and 3?

A. $\frac{4}{25}$

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

C. $\frac{1}{25}$

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

50. A basket contains 9 apples, 8 bananas and 7 oranges. A fruit is picked from the basket, find the probability that it is neither an apple nor an orange.

A. $\frac{7}{24}$

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

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

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

CHECK YOUR ANSWERS

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JAMB MATHEMATICS PAST QUESTIONS (PT.4)

TYPE: S

1. Which Question Paper Type of Mathematics is given to you?

A. Type F
B. Type E
C. Type L
D. Type S

2. Find the value of 110111_2 + 10100_2

A. 1001111_2
B. 1101011_2
C. 100101_2
D. 1001111_2

3. A woman bought a grinder for ₦60,000. She sold it at a loss of 15%. How much did she sell it?

A. ₦50,000
B. ₦53,000
C. ₦52,000
D. ₦51,000

4. Express the product of 0.00043 and 2000 in standard form.

A. 8.6×10
B. 8.3×10^{-3}
C. 8.6×10^{-2}
D. 8.6×10^{-1}

5. A man donates 10% of his monthly net earnings to his church. If it amounts to ₦4,500, what is his net monthly income?

A. ₦62,500
B. ₦40,500
C. ₦45,000
D. ₦52,500

6. If log 7.5 = 0.8751, evaluate 2 log 75 + log 750.

A. 66.253
B. 6.6252
C. 6.6253
D. 66.252

7. Solve for x in $8x^{-2} = \frac{2}{25}$

A. 10

B. 4

C. 6

D. 8
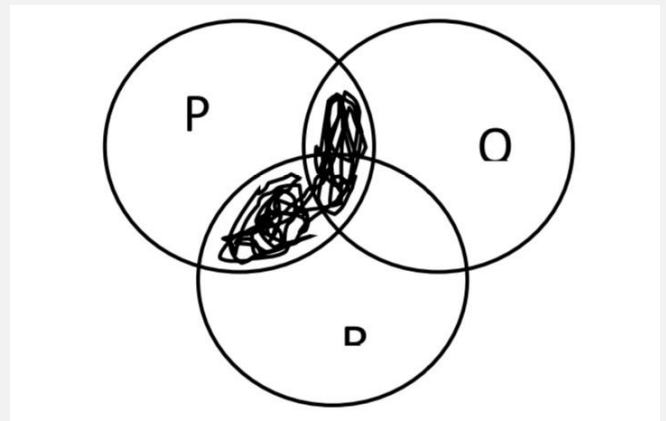
8. Simplify $\frac{2\sqrt{2}-\sqrt{3}}{\sqrt{2}+\sqrt{3}}$

A. $3\sqrt{6} + 1$

B. $3\sqrt{6} - 7$

C. $3\sqrt{6} + 7$

D. $3\sqrt{6} - 1$

9. Evaluate $\log_2 8 + \log_2 16 - \log_2 4$

A. 6

B. 3

C. 4

D. 5

10. If P = {1,2,3,4,5} and P ∪ Q = {1,2,3,4,5,6,7}, list the elements in Q.

A. {5, 7}

B. {6}

C. {7}

D. {6, 7}

11. From the Venn diagram above, the shaded parts represent

A. $(P \cap Q) \cap (P \cap R)$

B. $(P \cap Q) \cup (P \cap R)$

C. $(P \cup Q) \cap (P \cup R)$

D. $(P \cup Q) \cup (P \cup R)$

12. If $gt^2 - k - w = 0$, make g the subject of the formula.

A. $\frac{k-w}{t}$

B. $\frac{k+w}{t^2}$

C. $\frac{k-w}{t^2}$

D. $\frac{k+w}{t}$

13. Factorize $2y^2 - 15xy + 18x^2$

A. $(3y + 2x)(y - 6x)$

B. $(2y - 3x)(y + 6x)$

C. $(2y - 3x)(y - 6x)$

D. (2y + 3x) (y − 6x)

14. Find the value of k if y −1 is a factor of $y^3 + 4y^2 + ky − 6$

A. 0

B. -6

C. -14

D. 1

15. y varies directly as w^2. When y = 8, w = 2. Find y when w = 3

A. 6

B. 18

C. 12

D. 9

16. P varies directly as Q and inversely as R. When Q = 36 and R = 16, P = 27. Find the relation between P, Q and R.

A. $P = \frac{12}{QR}$

B. $P = \frac{Q}{12R}$

C. $P = \frac{12Q}{R}$

D. P=12QR

17. What is the solution of $\frac{x-5}{x+3} < -1$?

A. x < -3 or x > 5

B. -3 < x < 1

C. x < -3 or x > 1

D. -3 < x < 5

18. Evaluate the inequality $\frac{x}{2} + \frac{3}{4} \le \frac{5x}{6} - \frac{7}{12}$

A. x ≥ −4

B. x ≥ 4

C. x ≤ 3

D. x ≥ -3

19. The 4th term of an A.P. is 13 while the 10th term is 31. Find the 24th term.

A. 69

B. 89

C. 75

D. 73

20. What is the common ratio of the G.P. $(\sqrt{10} + \sqrt{5})(\sqrt{10} + 2\sqrt{5})$ + …?

A. 5

B. $\sqrt{2}$

C. $\sqrt{5}$

D. 3

21. A binary operation * is defined by x * y = xy. If x * 2 = 12 − x, find the possible values of x.

A. −3, −4

B. 3, 4

C. 3, −4

D. −3, −4

22. Find y, if $\begin{pmatrix} 5 & -6 \\ 2 & -7 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 7 \\ -11 \end{pmatrix}$

A. 2

B. 8

C. 5

D. 3

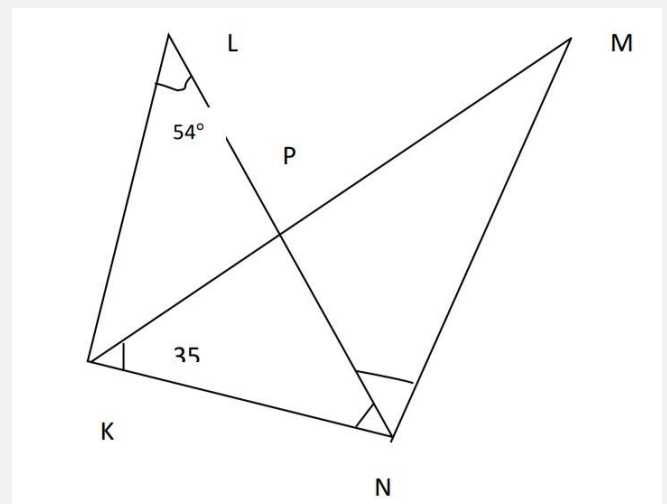23. If $\begin{vmatrix} -x & 12 \\ -1 & 4 \end{vmatrix} = -12$, find x.

A. 6

B. −6

C. −2

D. 3

24. Find the value of $\begin{vmatrix} 0 & 3 & 2 \\ 1 & 7 & 8 \\ 0 & 5 & 4 \end{vmatrix}$

A. −2

B. 12

C. 10

D. −1

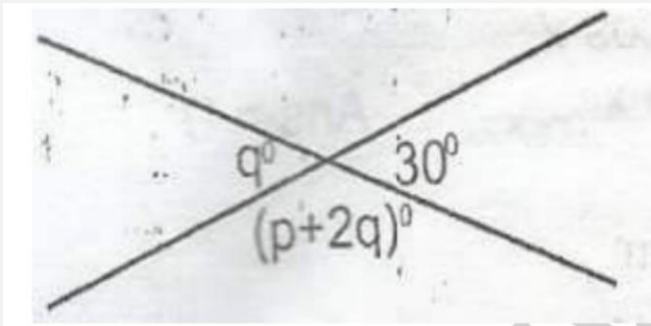25. How many sides has a regular polygon whose interior angle is 135º each?

A. 8

B. 12

C. 10

D. 9

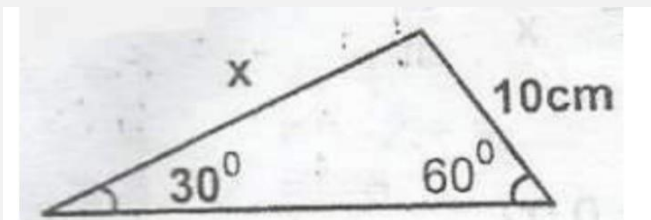26. In the figure above, KL∥NM, LN bisects <KNM. If angles KLN is

54° and angle MKN is 35°, calculate the size of angle KMN.

A. 19°

B. 91°

C. 89°

D. 37°

27. From the figure above, what is the value of p?

A. 135°

B. 90°

C. 60°

D. 45°

28. Find the value of x in the figure above.

A. 4√3 cm

B. 120√3 cm

C. 10√3 cm

D. 5√3 cm

29. If the angle of a sector of a circle with radius 10.5 cm is 120°, find the perimeter of the sector.

A. 2.5m

B. 8.0m

C. 7.5m

D. 5.0m

30. A cylindrical tank has a capacity of 6160m³. What is the depth of the tank if the radius of its base is 28cm? [п = $\frac{22}{7}$]

A. 8.0m

B. 7.5m

C. 5.0m

D. 2.5m

31. The locus of a dog tethered to a pole with a rope of 4m is a _____
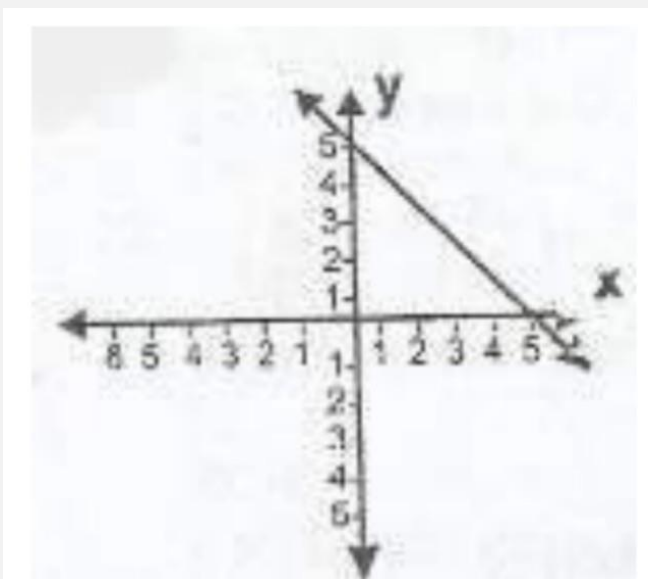
A. semi-circle with radius 4m

B. circle with diameter 4m

C. circle with radius 4m

D. semi-circle with diameter 4m

32. Find the mid-point of S(-5, 4) and T(-3, -2).

A. 4, -1

B. -4, 2

C. 4, -2

D. -4, 1

33. The gradient of a line joining (x,4) and (1,2) is $\frac{1}{2}$. Find the value of x

A. -5

B. 5

C. 3

D. -3

34. In the figure above, what is the equation of the line that passes the y-axis at (0,5) and passes the x-axis at (5,0)?

A. y = -x $-$ 5

B. y = x + 5

C. y = -x + 5

D. y = x $-$ 5

35. Calculate the mid-point of the line segment y $-$ 4x + 3 = 0, which lies between the x-axis and y-axis.

A. $\left(-\frac{2}{3},\frac{3}{2}\right)$

B. $\left(\frac{3}{8},-\frac{3}{2}\right)$

C. $\left(\frac{3}{8},\frac{3}{2}\right)$

D. $\left(-\frac{3}{2},\frac{3}{2}\right)$

36. Find the equation of the straight line through (-2, 3) and perpendicular to 4x + 3y - 5 = 0

A. 5x - 2y - 11 = 0

B. 3x - 4y + 18 = 0

C. 3x + 2y - 18 = 0

D. 4x + 5y + 3 = 0

37. If sin θ = $\frac{12}{13}$, find the value of 1 + cos θ

A. $\frac{5}{13}$

B. $\frac{25}{13}$

C. $\frac{18}{13}$

D. $\frac{8}{13}$

38. If y = 4x³ - 2x² + x, find $\frac{dy}{dx}$

A. $12x^2 - 4x + 1$

B. $8x^2 - 2x + 1$

C. $8x^2 - 4x + 1$

D. $12x^2 - 2x + 1$

39. If y = cos 3x, find $\frac{dy}{dx}$

A. $-3\sin 3x$

B. $\frac{1}{3}\sin 3x$

C. $-\frac{1}{3}\sin 3x$

D. $3\sin 3x$

40. Find the minimum value of y = x2 − 2x−3

A. −4

B. 4

C. 1

D. −1

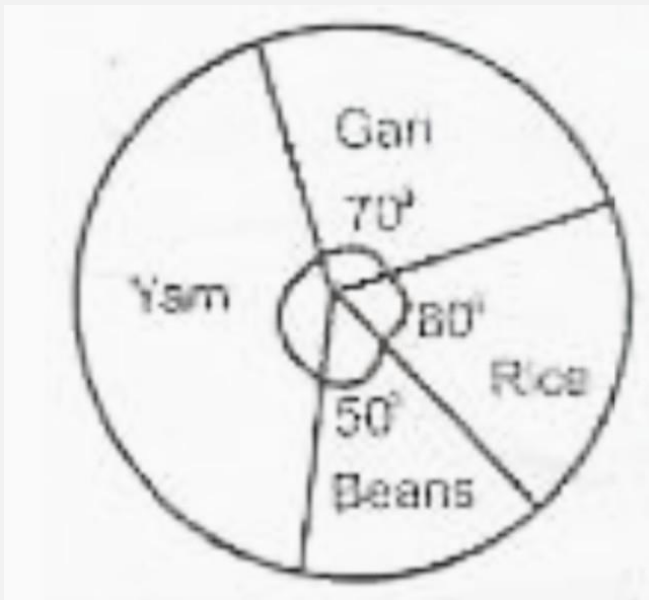41. Evaluate ∫ sin $2x$ dx

A. -cos $2x$ + k

B. cos $2x$ + k

C. $\frac{1}{2}$ cos $2x$ + k

D. $-\frac{1}{2}$ cos $2x$ + k

42. Evaluate $\int (2x + 3)^{\frac{1}{2}}$ dx

A. $\frac{1}{12}(2x + 3)^{\frac{3}{4}}$ + k

B. $\frac{1}{12}(2x + 3)^6$ + k

C. $\frac{1}{3}(2x + 3)^{\frac{1}{42}}$ + k

D. $\frac{1}{3}(2x + 3)^{\frac{3}{2}}$ + k

43. The pie chart below shows the monthly distribution of a man's salary on food items. If he spent ₦8,000 on rice, how much did he spend on yam?

A. ₦42,000

B. ₦18,000

C. ₦16,000

D. ₦12,000

44. The mean of 2 - 4, 4 + t, 3 - 2t and t - 1 is _____

A. −2

B. t

C. −t

D. 2

Values	0	1	2	3	4
Frequency	1	2	2	1	9

45. Find the mode of the distribution above.

A. 4

B. 1

C. 2

D. 3

46. Find the median of 5, 9, 1, 10, 3, 8, 9, 2, 4, 5, 5, 5, 7, 3 and 6

A. 3

B. 6

C. 5

D. 4

47. Find the standard deviation of 5, 4, 3, 2, 1

A. $\sqrt{10}$

B. $\sqrt{2}$

C. $\sqrt{3}$

D. $\sqrt{6}$

48. In how many ways can a team of 3 girls be selected from 7 girls?

A. $\frac{7!}{2!5!}$

B. $\frac{7!}{3!}$

C. $\frac{7!}{4!}$

D. $\frac{7!}{3!4!}$

Numbers	1	2	3	4	5	6
Frequency	18	22	20	16	10	14

49. The table above represents the outcome of throwing a die 100 times. What is the probability of obtaining at least a 4?

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

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

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

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

50. A number is chosen at random from 10 to 30 both inclusive. What is the probability that the number is divisible by 3?

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

B. $\frac{2}{15}$

C. $\frac{1}{10}$

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

1. The sum of the progression is

$1+x+x^2+\ldots$ = _____

A. $\frac{1}{1-x}$

B. $\frac{1}{1+x}$

C. $\frac{1}{x-1}$

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

2. Find a square root of 170- 20 $\sqrt{30}$

A. $2\sqrt{10} - 5$

B. $3\sqrt{5} - 8\sqrt{6}$

C. $2\sqrt{5} - 5\sqrt{6}$

D. $5\sqrt{5} - 2\sqrt{6}$

3. Multiply $(x+3y + 5)$ by $(2x^2 + 5y + 2)$

A. $2x^3 +3yx^2+10xy+15y^2+13y+10x^2+2x+10$

B. $2x^3+6yx^2+5xy+15y^2 +31y+10x^2+2x+10$

C. $2x^3 +3yx^2+5xy+10y^2+13y+5x^2+2x+10$

D. $2x^3 +6yx^2+5xy+15y^2+13y+10x^2+2x+10$

4. A force of 5 units acts on a particle in the direction to the east and another force of 4 units acts on the particle in the direction north-east. The resultant of the two forces is _____
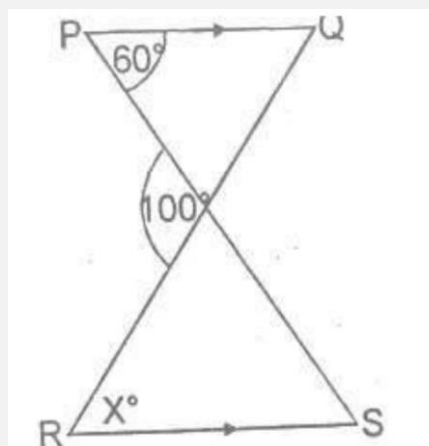
A. $\sqrt{3}$ *units*

B. $3\sqrt{}$ *units*

C. $\sqrt{41} + 20\sqrt{2}$ *units*

D. $\sqrt{41} + 202$ *units*

5. Simplify $\frac{\left(a-\frac{1}{a}\right)\left(a+\frac{1}{a}\right)}{\left(a^2-\frac{1}{a^2}\right)}$

A. $a^{2/3}$

B. $a^{-1/2}$

C. $a^{1/5}$

D. $a^{1/3}$

6. In the diagram below PQ is parallel to RS, calculate the value of x.

A. 20°

B. 40°

C. 60°

D. 80°

7. A ladder resting on a vertical wall makes an angle whose tangent is 2.4 with the ground. If the distance between the foot of the ladder and the wall is 50cm, what is the length of ladder?

A. 1.3m

B. 1.1m

C. 1.2m

D. 1.3m

8. After getting a rise of 15%, a man's new monthly salary is ₦345. How much per month did he earn before the increase?

A. ₦350

B. ₦396.75

C. ₦300

D. ₦293.25

9. A trader goes to Ghana for y days with Y cedis. For the first x days, he spends X cedis per day. The amount he has to spend per day for the rest of his stay is _____

A. $\frac{Y(y+x)}{y-x}$ cedis

B. $\frac{Yy+Xx}{y-x}$ cedis

C. $\frac{Y-xy}{x-y}$ cedis

D. $\frac{Y-Xx}{y-x}$

10. The mean of the numbers 1.2, 1.0, 0.4, 1.4, 0.8, 0.8, 1.2 and 1.1 is

A. 1.5

B. 0.8

C. 1.0

D. 1.05

11. A solid cylinder of radius 3cm has a total surface area of 36cm². Find its height.

A. 2cm

B. 3cm

C. 4cm

D. 5cm

12. When a dealer sells a bicycle for ₦81, he makes a profit of 8%. What did he pay for the bicycle?

A. ₦75

B. ₦74.52

C. ₦75

D. ₦75.52

13. Which of the formula below represents the general terms of the following set of numbers? $\{-1, \frac{2}{3}, -\frac{1}{2}, \frac{2}{5}, ...\}$ for n = 1, 2, 3, 4, ...

A. $\frac{2}{n-1}$

B. $(-)^{n+1}\frac{2}{n+1}$

C. $(-)\frac{2}{n+1}$

D. $\frac{n}{2n-1}$
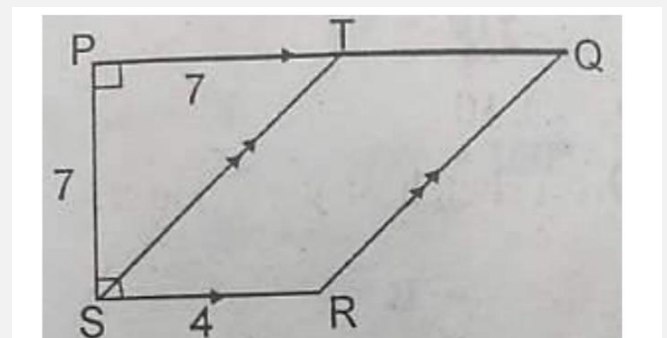
14. Write the decimal number 39 to base 2.

A. 100111

B. 110111

C. 111001

D. 100101

15. A pentagon has four of its angles. If the size of the fifth angle is 60°. Find the size of each of the four equal angle is _____

A. 60°

B. 108°

C. 120°

D. 150°

16. In the figure below PQ//SR, ST//RQ, PS = 7cm, PT=7cm, SR= 4cm. Find the ratio of the area of QRST to the area of PQRS

A. 56:77

B. 56:105

C. 28:105

D. 28:49

17. Find a two-digit number such that three times the ten digits is 2 less than twice the units digit and

twice the units digit and twice the number is 20 greater than the number obtained by reversing the digits.

A. 24
B. 42
C. 74
D. 47

18. In the figure above, the area of XYZW is _____

A. 60 cm2
B. 54 cm2
C. 27 cm2
D. 52.2 cm2

19. In ΔXYZ, XY = 3 cm, XZ= 5 cm and YZ= 7cm. If the bisector of XYZ meets XZ at W, what is the length of XW?

A. 1.5 cm
B. 2.5 cm
C. 3 cm
D. 4cm

20. Marks scored by some children in an arithmetic test are 5, 3, 6, 9, 4, 7, 8, 6, 2, 7, 8, 4, 5, 2, 1, 0, 6, 9, 0, 8. The arithmetic mean of the marks is _____

A. 6
B. 5
C. 7
D. 4

21. The graphical methods of solving the equation $x^3 + 3x^2 + 4x - 28 = 0$ is by drawing the graphs of the curves

A. $y = x^3$ and $y = 3x^2 + 4x - 48$
B. $y = x^3 + 3x^2 + 4x - 28$ and the line $y = 1$
C. $y = x^3 + 3x^2 + 4x$ and $y = 28/x$
D. $y = x^2 + 3x + 4$ and $y = 28/x$

22. A sector of a circle is bounded by two radii 7 cm long and an arc of length 6cm. Find the area of the sector.

A. 42 cm^2
B. 3 cm^2

C. 21 cm²

D. 24 cm²

23. Express 150 kilometres per second in metres per hour.

A. 7.8×10^5

B. 4.5×10^6

C. 7,800,000

D. 4.68×10^6

24. The arithmetic mean of the ages of 30 pupils in a class is 15.3 years. One boy leaves the class and one girl is enrolled, and the new average age of 30 pupils in the class becomes 15.2 years. How much older is the boy than the girl?

A. 30 years

B. 6 years

C. 9 years

D. 3 years

25. A world congress of mathematician was held in Nice in 1970 with 800 people participating. There were 300 from Europe, 200 from America, 150 from Asia, 45 from Africa and 105 from Australia.

Representing the above on a Pie Chart, the angle of the sector representing the participants from Asia is _____

A. 150°

B. 67.5°

C. 67°

D. 135°

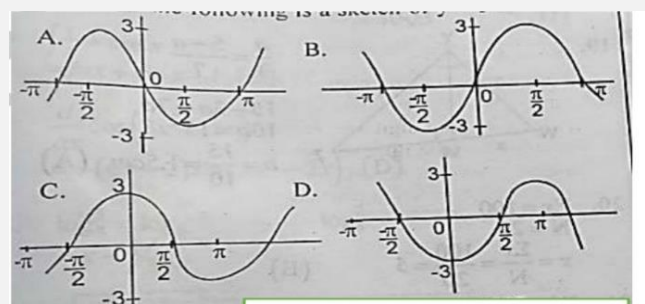26. Find the sum to infinity of the following sequence: 1, 9/10, $9/10^2$, $9/10^3$

A. 1/10

B. 9/10

C. 10/9

D. 10

27. Which of the following is a sketch of y = 3 sin x?

28. Given that $\log_a 2 = 0.693$ and $\log_a 3 = 1/097$, Find $\log_a 13.5$

A. 1.404

B. 1.790

C. 2.598

D. 2.790

29. If the function $f(x) = x^3 + 2x^2 + qx - 6$ is divisible by the factor x+1, find q.

A. −5

B. −2

C. 2

D. 5

30. What value of g will make the expression $4x^2 - 18xy + y + g$ a perfect square?

A. 9

B. $\frac{9y^2}{4}$

C. $81y^2$

D. $\frac{81y^2}{4}$

31. An arc of a circle subtends an angle 70° at the centre. If the radius of the circle is 6cm, calculate the area of the sector subtended by the given angle.

A. 22 cm²

B. 44 cm²

C. 66 cm²

D. 88 cm²

32. The angle of elevation of a building from a measuring instrument placed on the ground is 30°. If the building is 40m high, how far is the instrument from the foot of the building?

A. $\frac{20}{\sqrt{3}}$ m

B. $\frac{40}{\sqrt{3}}$ m

C. $20\sqrt{3}$ m

D. $40\sqrt{3}$ m

33. Integrate $\frac{1}{x} + \cos x$ with respect to x.

A. $-1/x + \sin x + k$

B. $\ln x + \sin x + k$

C. $\ln x - \sin x + k$

D. $-1/8 \sin x + k$

34. $\frac{dy}{dx}$ cos $(3x^2 - 2x)$ is equal to

_____

A. $-\sin(6x - 2)$

B. $-\sin(3x^2 - 2)$

C. $(6x-2)\sin(3x^2 - 2x)$

D. $-(6x-2)\sin(3x^2 - 2x)$

35. If $\log_8 10 = x$, evaluate $\log_8 5$ in terms of x.

A. $1/2x$

B. $x - 1/4$

C. $x - 1/3$

D. $x - 1/2$

36. Simplify $\sqrt{\dfrac{0.0023 \times 750}{0.00345 \times 1.25}}$

A. 15

B. 20

C. 40

D. 75

37. Find the matrix **T** if **ST** = **I** where S = $\begin{pmatrix} -1 & 1 \\ 1 & -2 \end{pmatrix}$ and I is the identity matrix.

A. $\begin{pmatrix} -2 & 1 \\ -1 & 1 \end{pmatrix}$

B. $\begin{pmatrix} -2 & -1 \\ -1 & -1 \end{pmatrix}$

C. $\begin{pmatrix} -1 & -1 \\ 0 & -1 \end{pmatrix}$

D. $\begin{pmatrix} -1 & 1 \\ 0 & 1 \end{pmatrix}$

38. The first term of a geometrical progression is twice its common ratio. Find the sum of the first two terms of the progression if its sum to infinity is 8.

A. 8/5

B. 8/3

C. 72/25

D. 56/9

39. In ΔMNO, MN = 6 units, MO = 4 units and NO =12 units. If the bisector of angle M meets NO at P, calculate NP.

A. 4.8 units

B. 7.2 units

C. 8.0 units

D. 18.0 units

40. Evaluate $\int \frac{n}{4} (\sin x - \cos x) \, dx$

A. $\sqrt{2} + 1$
B. $\sqrt{2} - 1$
C. $-\sqrt{2} - 1$
D. $-\sqrt{2}$

~~DISCLAIMER~~

These are **not** JAMB expo questions for this year, but past questions of previous years.

You are advised to study these past questions and know their **correct answers** as well as how the answer to each question was gotten to be well-prepared for your JAMB exam.

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