MATHS

BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

MODEL QUESTION PAPER -04

Questions

1. Euclids Division Lemma states that for any two positive integers a and b, there exists unique integers q and r such that $a = bq + r$, where r must satisfy.

    A. $O \leq r < b$

    B. $O < r \leq b$

    C. $l < r < b$

D. $O < r < b$

Answer: A::B

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2. The value of $\sin^2 29 + \sin^2 61$ is _____

A. 61

B. 29

C. 1

D. 0

Answer: A::C

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3. If 4 sides of a quadrilateral ABCD are tangents to a circle, then

A. $AB + CD = AD + BC$

B. $AB + AD = BC + CD$

C. $AB + BC = AD + DC$

D. $AC + AD = BC + BD$

Answer: A::B::C::D

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4. The volume of two shapes are in the ration $125 : 64$. The ratio of their surface areas.

A. $1 : 5$

B. $4 : 5$

C. $5:4$

D. $1:4$

Answer: C::D

5. the degree of the polynomial in the graph given below is _____

A. 0

B. 1

C. 2

D. 3

Answer: C::D

6. The 7th and 13th terms of an A.P. are 34 and 64 respectively, 1

Then its first term difference are:

A. 4, 5

B. 5, 4

C. 9, 4

D. 4, 9

Answer: B::D

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7. In the given fig $AM:DN = 4:5\triangle ABC \sim \triangle DEF$ and Area of

$\triangle DEF = 625cm^2$ The area of $\triangle ABC$ is

A. $16cm^2$

B. $25cm^2$

C. $81cm^2$

D. $400cm^2$

Answer: B::C::D

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8. The propability of picking a good apple in a lot of 400 apples is 0.035. The no of good apples in the lot is

A. 14

B. 15

C. 400

D. 35

Answer: A::D

9. Find the remainder using remainder theorem, when $2x^3 + 3x^2 + x + 1$ is divided by $x + \dfrac{1}{2}$

A.

B.

C.

D.

Answer: 1

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10. If the sum of first n even natural number is 240. find the value of n.

A.

B.

C.

D.

Answer: $n = 15$ **or** $n = 15$

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11. The sum of n natural numbers is 325. find n.

A.

B.

C.

D.

Answer: $n = 25$

12. Is every square similar to every Rectangle ? Why ?

A.

B.

C.

D.

Answer:

13. Find the HCF of 105 and 1515 by prime factorization method.

A.

B.

C.

D.

Answer: $\therefore$ **H.C. F. of 105 and** $1515 = \{3, 5\}$

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14. If $\sin \theta = \dfrac{4}{5}$ and $\cos \theta = \dfrac{3}{5}$ find the value of $\sin^2 \theta + \cos^2 \theta$

A.

B.

C.

D.

Answer: 1

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15. Find the value of $4 \sin^2 60 + 3 \tan^2 30 - 8 \sin 45 . \cos 45$

A.

B.

C.

D.

Answer: 0

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16. Find the volume of the hemisphere of radius 21 cm.

A.

B.

C.

D.

Answer: $19404cm^3$

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17. Prove that $n^2 - n$ is divisible by 2 for every positive integer n.

A.

B.

C.

D.

Answer:

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18. Solve for x and y

$$41x + 53y = 135$$

$$53x + 41y = 417$$

A.

B.

C.

D.

Answer: $y = 1, x = 2$

19. Find the roots of the quadratic equation $9x^2 - 3x - 20 = 0$ by formula method.

A.

B.

C.

D.

Answer: The roots are $x = \dfrac{5}{3}$ **and** $x = \dfrac{-4}{3}$

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20. If A(-2, -1) B(a, 0) C(4, b) and D(1 , 2) are the vertices of a parallelogram. Find a and b
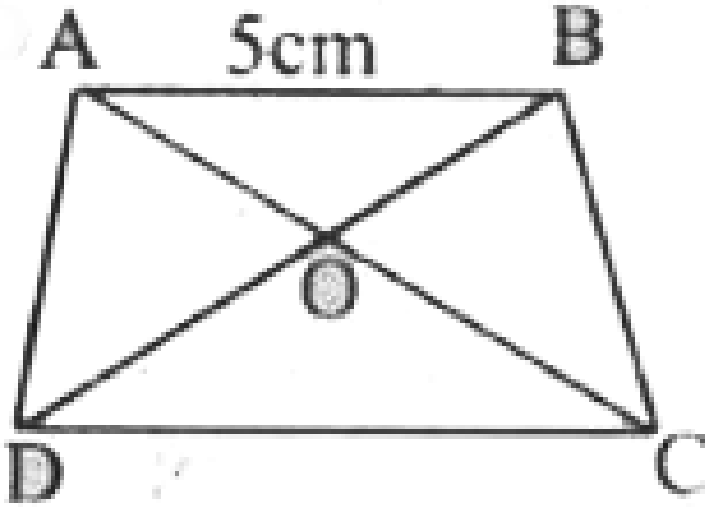
A.

B.

C.

D.

Answer: $a = 1, b = 3$

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21. In given figure, $\dfrac{AO}{OC} = \dfrac{BO}{OD} = \dfrac{1}{2}$ and $AB = 5cm.$ Find the value of DC.

OR

Equilateral triangles are drawn on the sides of a right triangle show that the area of triangle on the hypotenuse is equal to the

sum of the areas of triangles on the other two sides.

A.

B.

C.

D.

Answer: $DC = 10cm$

22. A child has a dice whose six faces show the letters are given below :

A B C D E A

A.

B.

C.

D.

Answer: $\dfrac{1}{6}$

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23. Prove that

$$\frac{\sin \theta}{1 - \cos \theta} = \cos ec\theta + \cot \theta$$

OR

Prove that $\dfrac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta} = \tan\theta$

A.

B.

C.

D.

Answer:

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24. The sum of digits of a two digit number is 7. If the digits are reversed and the resulting number is decreased by 2, twice the original number is obtained, find the original no.

OR

A boat takes 5 hours to go 300 km down stream. It takes the same

time to go 150 km upstream. Calculate,

(i) the speed of the boat in still water.

(ii) the speed of the stream.

A.

B.

C.

D.

Answer: $\therefore$ **The original number** $= yx = 25$
OR
$\therefore$ **Speed of the boat in still water is 45km/hr.**
Speed of the stream is 15km/hr.

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25. The zeroes of the cubic polynomial $x^3 - 6x^2 + 3x + 10$ are in

A.P. for some real numbers a and d. Find the zeroes of the gives

polynomial.

A.

B.

C.

D.

Answer: ∴ zeroes of the given polynomial are 5, -1, 2

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26. In a class test, the sum of Sharma age markes in Mathematics and English is 30. Had he got 2 marks more in maths and 3 marks less in English, the product of their marks would have been 210. Find his marks in two subjects.

OR

The Sum of the reciprocals of Adithya ages 3 years age and 5 years from now is $\dfrac{1}{3}$ Find his present age.

A.

B.

C.

D.

Answer: $y = 17,\ x = 30 - 17 = 13$

OR

$x = 7,\ x = -3$

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27. What type of triangle is $\triangle ABC$, with the coordinates of the vertices are A(-1, 0) B(1, 0) and $C\left(0,\ \sqrt{3}\right)$. Calculate its Area.

OR

Find the values of k so that the area of the triangle with vertices (1, -1) (-4, 2k) and (-k, -5) is 24 sq. units.

A.

B.

C.

D.

Answer: $\therefore$ **Area of an triangle** $= 3cm^2$
OR
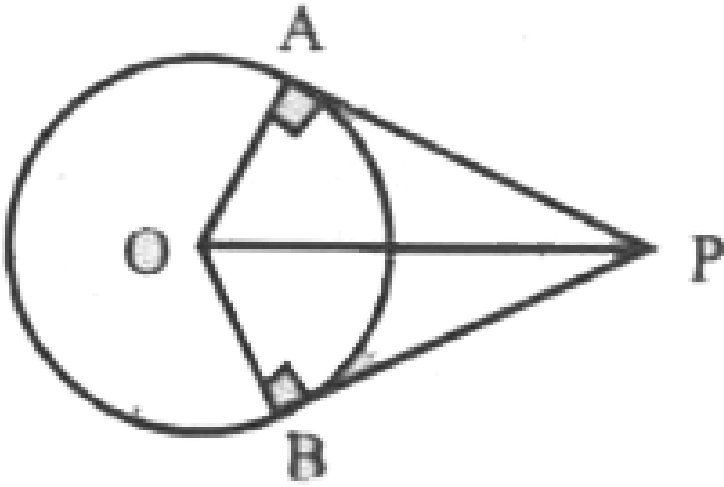$K = 3, k = \dfrac{-9}{2}$

28. Prove that the tangents drawn to a circle from an external point are equal.
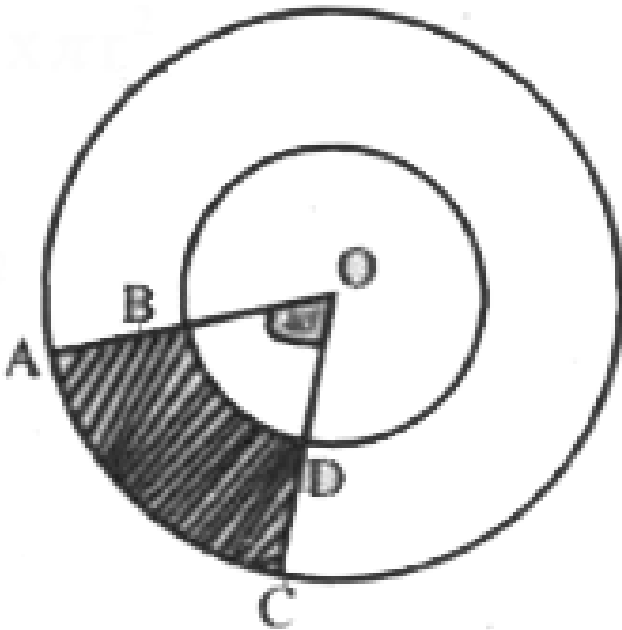
A.

B.

C.

D.

Answer:

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29. Find the area of the shaded region in fig if radii of the two concentric circles with centre O are 7 cm and 14 cm respectively and $\lfloor AOC = 40°$

OR

Find the area of the shaded region in fig. if ABCD is a square of side 14 cm and APD and BPC are semi circles.

A.

B.

C.

D.

Answer: 51.33 **sq. cms**

OR

42 **sq. cms.**

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30. 100 surnames were randomly picked up from a local telephone directory and the frequency distribution of the number of letters in English alphabets in the surnames was obtained as follows :

No of letters	$1-4$	$4-7$	$7-10$	$10-13$	$13-16$	$16-19$
No of surnames	6	30	40	16	4	4

Determine the median number of letters in the surnames. Find the mean number of letters in the surnames? Also, find the modal size of the surnames.

A.

B.

C.

D.

Answer: Mode $= 7.88$

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31. Draw a right triangle in which (other than the hypoten use) are of lengths 4 cm and 3 cm. Then construct another triangle whose sides are $\dfrac{5}{3}$ times the corresponding sides of the given triangle.

A.

B.

C.

D.

Answer: $8.3 cm$

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32. Solve the pair of linear equations graphically : $2x - y = 2$ and $2x - 3y = -6$ using graphical method.

A.

B.

C.

D.

Answer: -4

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33. Find the 60th term of an A.P 8, 10 , 12, ...if it has a total of 60 terms and hence find the sum of its last 10 terms.

OR

Find the sum of all natural numbers between 200 and 300 which are exactly divisible by 6.

A.

B.

C.

D.

Answer: $S_{10} = 1170$

OR

3984

34. The angle of elevation of the top of a cliff as seen from the top and bottom of a building are $45°$ and $60°$ respectively. If the neight of the buildings is 24 m, find the height of the cliff.

A.

B.

C.

D.

Answer: $\dfrac{24\sqrt{3}}{\left[\sqrt{3} - 1\right]}$

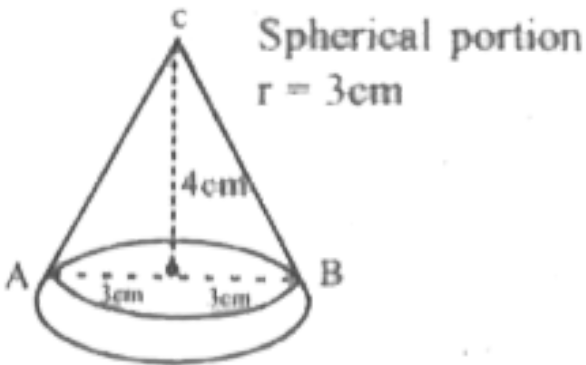▶ **Watch Video Solution**

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35. State and prove Basic proportionality theorem

A.

B.

C.

D.

Answer:

36. A toy is in the form of a cone mounted on a hemisphere with the same radius. The diameter of the conical portion is 6 cm and its height is 4cm. Determine the surface area and volume of the solid.

Spherical portion
r = 3cm

A.

B.

C.

D.

Answer: $\therefore$ **Volume of the toy** $= 94.28 cm^3$

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