MATHS

BOOKS - CBSE COMPLEMENTARY MATERIAL

MATHS (HINGLISH)

PRACTICE PAPER II

Section A

1. If n is a natural number, then $9^{2n} - 4^{2n}$ is always divisible by 5 (b) 13 (c) both 5 and 13 (d) none of these

A. 5

B. 13

C. 5 and 13

D. none of these

Answer: C

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2. If the mean of the following distribution is 2.6 then the value of y is:

x_i	1	2	3	4	5
f_i	4	5	y	1	2

A. 3

B. 8

C. 13

D. 24

Answer: B

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3. If the difference between the circumference and radius of a circle is 37 cm, then using $\pi = \frac{22}{7}$, the circumference (in cm) of the circle is (a) 154 (b) 44 (c) 14 (d) 7

A. 154

B. 44

C. 14

D. 7

Answer: B

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4. If $am \neq bl$, then the system of equations $ax + by = c, \quad lx + my = n$ (a) has a unique solution (b) has no solution (c) has infinitely many solutions (d) may or may not have a solution

A. has a unique solution

B. has no solution

C. has infinitely many solutions

D. may or may not have solution

Answer: A

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5. Write the value of k for which the quadratic equation $x^2 - kx + 4 = 0$ has equal roots.

A. 4,-4

B. 16

C. -4

D. 4

Answer: A

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6. If the sum of three consecutive terms of an increasing A.P. is 51 and the product of the first and third of these terms is 273, then the third term is (a) 13 (b) 9 (c) 21 (d) 17

A. 13

B. 9

C. 21

D. 17

Answer: C

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7. If $(k+1) = \sec^2\theta(1+\sin\theta)(1-\sin\theta)$, find k.

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8. If $(\text{cosec}\theta + \cot\theta) = x$ find $\text{cosec}\theta - \cot\theta$.

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9. A pole of height 6 m casts a shadow $2\sqrt{3}$ m long on the ground. Find the sun's elevation.

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10. State true or false and justify

"If a die is thrown, there are two possible outcomes an odd

number or an even number. Therefore the probability of getting an odd number is $\frac{1}{2}$".

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11. Which of the following experiments have equally likely outcomes? Explain. (i) A driver attempts to start a car. The car starts or does not start. (ii) A player attempts to shoot a basketball. She/he shoots or misses the shot. (iii) A trial is

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12. In an equilateral triangle, the lengths of the median is $\sqrt{3}$cm, then find the length of the side of this equilateral

triangle

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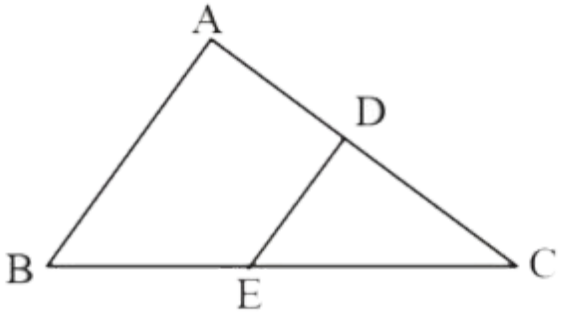
13. In the given figure of $\triangle ABC$, D and E are points on CA and CB respectively such that DE || AB, AD = 2x, DC = x + 3, BE = 2x – 1, CE = x find x.



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14. Find the altitude of an equilateral triangle of side 8 cm.

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15. Fill in the blanks:

If P(2, 4), Q(0, 3), R (3, 6) and S(a, b) are vertices of a parallelogram then the value of a + b is .....

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16. Find the value of k , if the point P (2,4) is equidistant from the points $A(5, k)$ and $B(k, 7)$.

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17. Two tangents making an angle of 60° between them, are drawn to a circle of radius $\sqrt{2}$ cm, then find the length of each tangent.

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18. If the sum and product of the zeros of the polynomial $ax^2 - 5x + c$ is 10 find a and c.

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19. If α, β are zeros of $2x^2 - 5x + 1$ find a quadratic polynomial whose zeroes are 2α and 2β.

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20. If radii of two concentric circles are 4 cm and 5 cm, then length of each chord of one circle which is tangent to the other circle, is

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Section B

1. Prove that $3 - \sqrt{5}$ is an irrational number

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2. $\frac{4}{x} + 5y = 7$

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3. A solid iron rectangular block of dimensions 4.4m, 2.6m and 1m is cast into a hollow cylindrical pipe of internal radius 30cm and thickness 5cm. Find the length of the pipe.

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4. In the following data, find the values of p and q. Also find the median class and modal class.

C.I.	Frequency	Cumulative frequency
100 – 200	11	11
200 – 300	12	p
300 – 400	10	33
400 – 500	q	46
500 – 600	20	66
600 – 700	14	80

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5. If $7\sin^2\theta + 3\cos^2\theta = 4$, then find value of $\tan\theta$.

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6. A box contains cards numbered from 13, 14, 15, ..., 60. A card is drawn at random from the box. Find the probability that the number on the drawn card is divisible by 2 or 3

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7. A box contains cards numbered from 13, 14, 15, ..., 60. A card is drawn at random from the box. Find the probability that the number on the drawn card is a prime number

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Section C

1. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m$, $9m + 1$or $9m + 8$.

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2. Find all zeroes of the polynomial $2x^4 - 10x^3 + 5x^2 + 15x - 12$ when its two zeroes are $\sqrt{\frac{3}{2}}$ and $-\sqrt{\frac{3}{2}}$

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3.

$Solve for x: \frac{x+1}{x-1} + \frac{x-2}{x+2} = 4 - \frac{2x+3}{x-2}; x \neq 1, -2, 2$

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4. Theorem 6.6 : The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.

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5. If an isosceles triangle ABC in which $AB = AC = 6cm$ is inscribed in a circle of radius $9cm,$ find the area of the triangle.

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6. In a AP of 50 terms the sum of first 10 terms is 210 and the sum of last 15 terms is 2565. Then find the AP

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7. Find the value of :

$$\left(\frac{3\tan 41^\circ}{\cot 49^\circ}\right)^2 - \left(\frac{\sin 35^\circ \sec 55^\circ}{\tan 10^\circ \tan 20^\circ \tan 60^\circ \tan 70^\circ \tan 80^\circ}\right)^2$$

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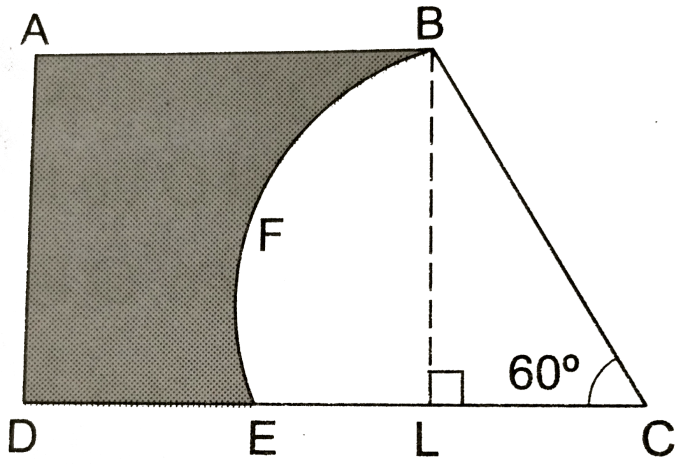
8. In the given figure, ABCD is a trapezium with $AB \| CD$ nad $\angle BCD = 60^\circ$.If BFEC is a sector of a circle with centre C and $AB = BC = 7$ cm and $DE = 4cm$, then find the area of the shaded region. [Use

$\pi = 22/7$ and $\sqrt{3} = 1.73$]



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9. The angle of elevation of cloud from a point 60 m above a lake is 30° and the angle of depression of the reflection of cloud in the lake is 60° . Find the height of the cloud .

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10. The height of a cone is 30 cm .A small cone is cut off at the top by a plane parallel to the base . If its volume be $\frac{1}{27}$ of the volume of the given cone, at what height above the base the section has been made?

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11. Draw a triangle ABC with side BC = 7 cm, $\angle B = 45^\circ, \angle A = 105^\circ$. Then, construct a triangle whose sides are $\frac{4}{3}$ times the corresponding sides of $\triangle$ ABC.

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12. The distribution given below show the marks of 100 students of a class:

then find Ogive medium of data

Marks	No. of students
0–5	4
5–10	6
10–15	10
15–20	10
20–25	25
25–30	22
30–35	18
35–40	5

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13. the value of k for which the points $(3k-1, k-2), (k, k-7)$ and $(k-1, -k-2)$ are collinear.

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14. A motor boat whose speed is 18 km/h m still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

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