



MATHS

BOOKS - OSWAL PUBLICATION

NEW TYPOLOGIES INTRODUCED BY CBSE FOR BOARD 2021-22 EXAM

Unit I Number System Chapter 1 Real Numbers

1. Show that every positive even integer is of the form $2q$, and that every positive odd integer is of the form $2q + 1$, where q is some integer.

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2. Show that the square of any positive odd integer is of the form $4t + 1$, for some integer t .



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3. Use Euclid's division algorithm, to find the HCF of 176 and 38220.

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4. Find the HCF of 180, 252 and 324 by Euclid's Division algorithm.

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Unit I Number System Chapter 1 Real Numbers Self Assessment

1. Find the HCF of 70, 210, 315.

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2. What is the LCM of numbers 12 and 16 ?





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3. Find the product of LCM and HCF of the following pair of integers 510 and 92.



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4. Suresh wants to plant 40 orange trees, 20 mango trees, and 30 apple trees in equal rows (in terms of number of trees). Also, he wants to make distinct rows of trees (i.e., only type of trees in one row). Find the number of minimum rows.



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5. State whether $1.\bar{2} + \frac{1}{2}$ is a rational number or not.



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6. Find the HCF of 726 and 275 by using Euclid's division lemma.



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Unit II Algebra Chapter 2 Polynomials

1. Divide : $(x^2 - 4x + 3)$ by $(x - 1)$ and verify the division algorithm.



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2. Divide the polynomial $6x^4 - 44x^2 + 6x - 3$ by the polynomial $x^2 - 3x + 1$ and verify the division algorithm.



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Unit II Algebra Chapter 2 Polynomials Self Assessment

1. Divide $2x^2 + 3x - 1$ by $x + 1$ and find the remainder.

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2. Divide $2x^3 - 5x^2 - 8x + 15$ by $x - 3$.

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3. Divide $x^3 - 12x^2 + 0x - 42$ by $x^2 - 2x + 1$.

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4. Prove that : $2x^4 - 9x^3 + 21x^2 - 26x + 12$ is completely divisible by $2x$

-3.

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1. Solve for x and y :

$$2x + 3y = 46,$$

$$3x + 5y = 74$$



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2. Solve for x and y ,

$$8x + 5y - 11 = 0$$

$$3x - 4y - 10 = 0$$



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1. Find the solution of pair of linear equation $x + 2y - 2 = 0$ and $x - 3y - 7 = 0$.

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2. If the solution of pair of linear equation $2x - 3y = 13$ and $7x - 2y = 20$ is $x = 2$ and $y = -3$, then find the value of m for which $y = mx + 7$.

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3. Find the solution of the equations $8x + 5y - 9 = 0$ and $3x + 2y - 4 = 0$.

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4. Find the solution of $x + y = 7$ and $2x - 3y = 11$.

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1. The sum of the squares of three consecutive natural numbers is 110. Determine the numbers.

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2. A two-digit number is such that the product of the digits is 12. When 36 is added to the number the digits interchange their places. Determine the number.

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1. The product of two consecutive integers is 132. Find an equation for the statement. What is the degree of the equations?

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2. Difference between a number and its positive square root is 12. Find the number.

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3. Divide 25 in two parts so that sum of their reciprocals is $\frac{1}{6}$.

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4. The length of a rectangle is greater than its breadth by 3m. If its area be 10 sq. m find the perimeter.

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1. A passenger is charged Rs. 2250 for a cab. The cab owner charge Rs. 500 /- for the 1st hour. For every other hour he charges Rs. 50 less than the previous hour. Find the number of hours for which the passenger rides the cab.

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Unit II Algebra Chapter 5 Arithmetic Progression Self Assessment

1. Price of petrol keep on increasing every year, let us assume that the price of petrol in current year is Rs. 100 and every year it increases by Rs. 10. Then after how many every year it will get double.

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2. A rubber ball is thrown, after touching the ground it jumps again and again and forms a series : 100,90,80... then which is the term in the series when the ball will be at rest.



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3. Ravi invested Rs. 1250 in the first month, then adding Rs. 100 every month for the next one year. How much money he deposited in a bank after one year.



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Unit Iii Coordinate Geometry Chapter 6 Lines In Two Dimensions

1. The area of a triangle with vertices $(a,b+c)$, $(b,c+a)$ and $(c,a+b)$ is



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2. Find the value of α , if the points $(5,1)$, $(-2,-3)$ and $(8, 2\alpha)$ are collinear.



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1. Find the relation between x and y , if the points $(0,0)$, $(1,2)$ and (x,y) are collinear.

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2. Find the area of the triangle with vertices $(0,0)$, $(6,0)$ and $(0,5)$.

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3. Find the area of the triangle if vertices are $(1,1)$, $(2,2)$ and $(0,1)$

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4. Find the area of the quadrilateral with vertices $A(1,2)$, $B(2,2)$, $C(3,3)$, $D(5,3)$.



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Unit Iv Geometry Chapter 7 Triangles

1. The ratio of the the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides/altitudes.



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2. Theorem 6.9 : In a triangle, if square of one side is equal to the sum of the squares of the other two sides, then the angle opposite the first side is a right angle.



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Unit Iv Geometry Chapter 7 Triangles Self Assessment

1. The side of two similar triangle $\triangle DEF$ and $\triangle LMN$ are 35 cm and 45 cm respectively, then find the ratio of the area of triangles.

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2. If the ratio of corresponding sides of two similar triangles is 5 : 6, then find ratio of their areas.

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3. In $\triangle ABC \sim \triangle DEF$ and $ar(\triangle ABC) = 100cm^2$, $ar(\triangle DEF) = 196cm^2$ and $DE = 14$, then find AB.

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4. In a $\triangle ABC$, $AB = 10$ cm, $BC = 12$ cm and $AC = 14$ cm. Find the length of median AD . If G is the centroid, find length of GA .

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Unit Iv Geometry Chapter 9 Constructions

1. Draw $\triangle ABC$ with sides = 6 cm, 8 cm and 9 cm and then construct a triangle similar to $\triangle A'B'C'$ whose sides are $\frac{3}{5}$ or the corresponding sides of $\triangle ABC$.

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Unit Iv Geometry Chapter 9 Constructions Self Assessment

1. To divide a line segment AB in the ratio 4:7, a ray AX is drawn first such that $\angle BAX$ is an acute angle and then points A_1, A_2, A_3, \dots are

located at equal distance on the ray AX and the point B is joined to

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2. In a triangle ABC, $AB = 8$ cm, $AC = 10$ cm and $\angle B = 90^\circ$, then the area of $\triangle ABC$ is

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3. Draw a triangle ABC with side $BC = 6.5$ cm, $\angle B = 30^\circ$, $\angle A = 105^\circ$. Then construct another triangle whose sides are $\frac{3}{4}$ times the corresponding sides of the triangle ABC

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4. Draw a triangle ABC with side $BC = 6$ cm, $AB = 5$ cm and $\angle ABC = 60^\circ$. Then construct a triangle whose sides are $\frac{3}{4}$ of the corresponding sides of the triangle ABC.

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Unit V Trigonometry Chapter 10 Introduction To Trigonometry And Trigonometric Identities

1. If $\cos 2A = \sin (A - 15^\circ)$, find A.

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Unit V Trigonometry Chapter 10 Introduction To Trigonometry And Trigonometric Identities Self Assessment

1. Find the value of $\frac{\cos 56^\circ}{\sin 34^\circ}$.

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2. Evaluate : $\frac{(\cos 65^\circ \sin 18^\circ \cos 58^\circ)}{(\cos 72^\circ \sin 25^\circ \sin 32^\circ)}$

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3. If $\sin (36 + \theta)^\circ = \cos(16 + \theta)^\circ$ where $(36 + \theta)^\circ$, $(16 + \theta)^\circ$ are both acute angles then find the value of θ .

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4. Find the value of $\frac{\sin 25^\circ}{\cos 65^\circ} + \frac{\tan 23^\circ}{\cot 67^\circ}$

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5. Evaluate : $\tan 35^\circ \tan 60^\circ \tan 30^\circ \tan 65^\circ$.

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1. What is the length of the chord which subtends 120 degrees at the centre of the circle ?



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Unit Vi Mensuration Chapter 12 Areas Related To Circles Self Assessment

1. Find the length of the chord which subtends an angle of 120° at the centre of the circle of radius 6 cm.



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2. A chord of length 10 cm subtends an angle of 120° at the centre of the circle. Find the distance of the chord from the centre.



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3. A chord of a circle of radius 12 cm subtends an angle of 120° at the centre. Find the area of the corresponding segment of the circle.

(Use $\pi = 3.14$, $\sqrt{3} = 1.73$)



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Unit Vi Mensuration Chapter 13 Surface Areas And Volumes

1. A petrol tank is in the form of a frustum of a cone of height 20 m with diameters of its lower and upper ends as 20 m and 50 m respectively. Find the cost of petrol which can fill the tank completely at the rate of Rs. 70 per litre. Also find the surface area of the tank



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Unit Vi Mensuration Chapter 13 Surface Areas And Volumes Self Assessment

1. If the areas of circular bases of a frustum of a cone are 4 cm^2 and 9 cm^2 respectively and the height of the frustum is 12 cm. What is the volume of the frustum?



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2. If the radii of circular ends of a frustum of a cone are 20 cm and 12 cm and its length is 6 cm, then find the slant height of frustum.



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3. The radii of the circular ends of a solid frustum of a cone are 33 cm and 27 cm and its slant height is 10 cm. Find its total surface area.



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4. The radii of the circular ends of a frustum of height 6cm are 14cm and 6cm respectively. Find the lateral surface area and total surface area of the frustum.



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Unit VII Statistics And Probability Statistics

1. The following frequency distribution shows the distance (in metres) thrown by 68 students in a Javelin throw competition.

Distance (in m)	Number of students
0-10	4
10-20	5
20-30	13
30-40	20
40-50	14
50-60	8
60-70	4



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Unit VII Statistics And Probability Statistics Self Assessment

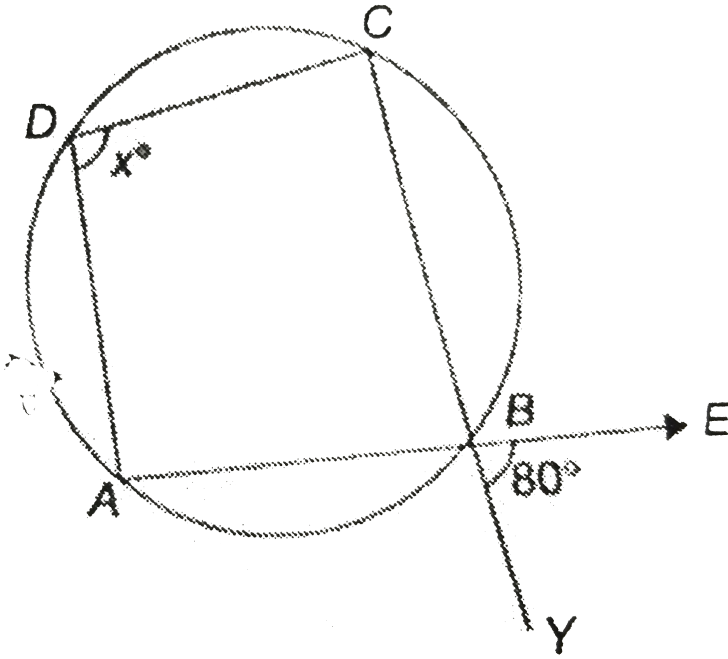
1. A page from Richa's pass book is given below. Answer the following question by finding the missing entries. She closes her account on 30 – 6 – 2007.

Date	Particulars	Amount With drawn (₹)	Amount deposited (₹)	Balance (₹)
5-1-2007	By Cash		500.00	500.00
23-1-2007	By Cash		6000.00	6500.00
8-2-2007	By Cash	(missing entry)		8000.00
13-2-2007	To self	(missing entry)		5000.00
18-2-2007	By Cash		2000.00	(missing entry)
9-3-2007	By Cash		5000.00	12,000.00
15-3-2007	To self	(missing entry)		9000.00
11-4-2007	To self	(missing entry)		5000.00
5-5-2007	By Cash	(missing entry)		10,050.00

Find the amount on which she will receive interest on closing her account.

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2. In Fig, find the value of x .



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