

I.T.B.P Public School, Dwarka
Class 10th, Holidays Homework (winter break)
Session: 2017-18

SST: Do the assignment given & learn the sample paper done in class for test.

MATHS: Do worksheets given in practice notebook. Revise all syllabus for pre-board exam.(Attached below).

ENGLISH: Solve the sample paper & solve the questions (extra) given in the class for the certain chapters.
Revise all the syllabus for pre-boards.

SCIENCE: Do worksheets given in practice notebook. Revise all syllabus for pre-boards

COMPUTER: Practice all tags of HTML. Make a list of doubt in HTML.
Practice XML, PROLOG & well-formed XML with attributes. Make list of doubts.
Read chapter of data base & practice MS Access OR open office base and make a list of doubts.

हिंदी: प्री बोर्ड परीक्षा के लिए संपूर्ण पाठ्यक्रम को याद कीजिए तथा लेखन का अभ्यास कीजिए।

ITBP PUBLIC SCHOOL, DWARKA

CLASS X

SUBJECT MATHEMATICS

Work Sheet of Chapter – 13 (Surface Areas and Volumes)

- Two cubes each of volume 27 cm^3 are joined end to end to form a solid. Find the surface area of the resulting cuboid.
- A cone of height 20 cm and radius of base 5 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find the diameter of the sphere.
- A solid sphere of radius 10.5 cm is melted and recast into smaller solid cones, each of radius 3.5 cm and height 3 cm. Find the number of cones so formed. [$\pi = 3.14$]
- 50 circular plates, each of radius 7 cm and thickness cm, are placed one above another to form a solid right circular cylinder. Find the total surface area and the volume of the cylinder so formed.
- A teak wood log is cut first in the form of a cuboid of length 2.3 m, width 0.75 m and of a certain thickness. Its volume is 1.104 m^3 . How many rectangular planks of size $2.3 \text{ m} \times 0.75 \text{ m} \times 0.04 \text{ m}$ can be cut from the cuboid?
- A vessel is in the form of hollow hemisphere mounted by a hollow cylinder. The diameter of hemisphere is 14cm and the total height of the vessel is 13cm. find inner surface area of vessel.
- A rectangular reservoir is 120 m long and 75 m wide. At what speed per hour must water flow into it through a square pipe of 20 cm wide so that the water rises by 2.4 m in 18 hours?
- The radii of the circular ends of a bucket of height 15 cm are 14 cm and r cm ($r < 14$ cm). If the volume of bucket is 5390 cm^3 , then find the value of r . [Use $\pi=3.14$]
- A 20 m deep well with diameter 7m is dug and the earth from the digging is evenly spread out to form a platform 22m by 14m. Find the height of the platform.
- An open metal bucket is in the shape of a frustum of a cone of height 21 cm with radii of its lower and upper ends as 10 cm and 20 cm respectively. Find the cost of milk which can completely fill the bucket at ₹30 per litre.
- A toy is in the form of a hemisphere surmounted by a right circular cone of the same base radius as that of the hemisphere. If the radius of base of the cone is 21 cm and its volume is of the volume of the hemisphere, calculate the height of the cone and the surface area of the toy.
- A drinking glass is in the shape of a frustum of a cone of height 14cm. the diameters of its two circular ends are 4cm and 2cm. find the capacity of the glass.
- Marbles of diameter 1.4 cm are dropped into a cylindrical beaker of diameter 7 cm, containing some water. Find the number of marbles that should be dropped into the beaker so that the water level rises by 5.6 cm.
- A wooden article was made by scooping out a hemisphere from each end of a solid cylinder. If the height of the cylinder is 20 cm and radius of the base is 3.5 cm, find the total surface area of the article.
- A bucket open at the top is of the form of a frustum of a cone. The diameters of its upper and lower circular ends are 40 cm and 20 cm respectively. If total 17600 cm^3 of water can be filled in the bucket, find its total surface area.
- A bucket has top and bottom diameter of 40 cm and 20 cm respectively. Find the volume of the bucket if its depth is 12 cm. Also find the cost of tin sheet used for making the bucket at the rate of ₹1.20 per dm^2 .
- A plot of land in the form of a rectangle has dimensions $240 \text{ m} \times 180 \text{ m}$. A drainlet 10 m wide is dug all around it (on the outside) and the earth dug out is evenly spread over the plot, increasing its surface level by 25 cm. Find the depth of the drainlet.
- An ice-cream seller has two types of ice-cream containers: in the form of cylindrical shape and in the shape of a frustum. Both have the same height of 7 cm and the diameter of cylindrical container is 7 cm. Upper and lower radii of frustum are 3.5 cm and 3 cm respectively.
 - Calculate the volume of both the containers.
 - If the cost of the containers is the same and the seller prefers to sell ice-cream in the cylindrical container, then which value is depicted by the seller?

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CLASS X

SUBJECT MATHEMATICS

Work Sheet of Chapter – 8 and 9

1. If $\sec \theta = 25/7$, find the values of $\tan \theta$ and $\operatorname{cosec} \theta$.
2. If $\sin \theta = \cos \theta$, find the value of θ .
3. If $\tan \theta = \cot (30^\circ + \theta)$, find the value of θ .
4. If $\sec A = 15/7$ and $A + B = 90^\circ$, find the value of $\operatorname{cosec} B$.
5. If $\tan (A + B) = \sqrt{3}$ and $\tan (A - B) = \frac{1}{\sqrt{3}}$; $0 < A + B \leq 90^\circ$; $A > B$, find A and B .
6. Find the value of $\tan 60^\circ$ geometrically.
7. Prove without using trigonometric tables: $\tan 10^\circ \cdot \tan 75^\circ \cdot \tan 15^\circ \cdot \tan 80^\circ = 1$
8. If $\sec \theta + \tan \theta = m$ and $\sec \theta - \tan \theta = n$, find the value of \sqrt{mn} .
9. Prove the following identities: $\frac{1}{\sec A - 1} + \frac{1}{\sec A + 1} = 2 \operatorname{cosec} A \cdot \cot A$
10. If $\sin \theta + \cos \theta = \sqrt{2}$, then evaluate: $\tan \theta + \cot \theta$
11. If $\tan \theta + \sin \theta = m$ and $\tan \theta - \sin \theta = n$, show that $m^2 - n^2 = 4\sqrt{mn}$
12. Prove that $\frac{\cos A - \sin A + 1}{\cos A + \sin A - 1} = \operatorname{cosec} A + \cot A$
13. The angle of elevation of the top of tower which is 30m away from foot of the tower is 30° find the height of tower.
14. A kite is flying at a height of 60m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60° . Find the length of string, assuming that there is no slack in the string.
15. The angle of elevation of the top of a tower from two points at a distance of 4m and 9m from the base of the tower and in the same straight line with it are complementary. Find the height of the tower.
16. Two poles of equal heights are standing opposite each other on either side of the road which is 80m wide from a point between them on the road the angle of elevation of the top of the poles are 60° and 30° respectively. Find the height of the poles and distance of the point from the poles.
17. Show that: $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ = 1$.
18. Prove that $(\operatorname{cosec} \theta - \cot \theta)^2 = \frac{1 - \cos \theta}{1 + \cos \theta}$.
19. Find the value of $\cos \theta \cot \theta \operatorname{cosec} \theta$, if $\sin \theta = \frac{1}{4}$.
20. Prove that: $(\operatorname{cosec} A - \sin A) (\sec A - \cos A) = \frac{1}{\tan A + \cot A}$.
21. In triangle ABC, right angled at B, if $\tan A = \frac{1}{\sqrt{3}}$, find the value of: $\sin A \cos C + \cos A \sin C$
22. Evaluate: $\frac{4}{3} \cot^2 30^\circ + 3 \sin^2 60^\circ - 2 \operatorname{cosec}^2 60^\circ - \frac{3}{4} \tan^2 30^\circ$.

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CLASS X

SUBJECT MATHEMATICS

Work Sheet of Chapter – 4 and 5

1. Find the value of K for which equation $2x^2 + Kx + 3 = 0$ has equal roots.
2. Find the root of the equation $x^2 - 3x - 10 = 0$
3. Find the 30th term of the AP 10, 7, 4,.....
4. What is the sum of first 10 terms of the AP 2, 7, 12,.....
5. Find two numbers whose sum is 27 and product is 182.
6. Find the roots of the equation $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$, $x \neq -4, x \neq -7$.
7. Find 31th term of an AP whose 11th terms 38 and 16th term is 73.
8. A train travels 360km at a uniform speed .If the speed had been 5km/h more it would have taken 1 hour less for the same journey .Find the speed of train.
9. Find the sum of odd number between 0 to 50.
10. Find the roots of quadratic equation $x^2 - 3x - 10 = 0$.
11. Find the nature of roots of equation $2x^2 - 3x + 5 = 0$
12. How many three digit number are divisible by seven.
13. Which term of AP 21, 42, 63, 84,..... Is 420?
14. If in an AP $a = 7$, $d = 3$ and $n = 8$, find a_n .
15. Find S_{13} in an AP if $a = 7$ and $a_{13} = 35$.
16. Find the roots of quadratic equation $x^2 - 3x - 10 = 0$.
17. A n express train takes 1hour less than a passenger train to travel 132 km.If the average speed of express train is 11 km/h more than that of the passenger train , find the average speed of the two trains.
18. Find the nature of roots of equation $2x^2 - 3x + 5 = 0$
19. If in an AP $a = 7$, $d = 3$ and $n = 8$, find a_n .
20. Find S_{13} in an AP if $a = 7$ and $a_{13} = 35$.
21. sum of Rs. 700 is to be used to give 7 cash prizes to students of a school for their overall academic performance. If each prize is Rs 20 less than its preceding prize, find the value of each of the prizes.
22. The altitude of a right triangle is 7 cm less than its base if the hypotenuse is 13cm, find the other two sides.
23. Check whether the equation $3x^2 - 5x + 2 = 0$ has real roots and if it has, find them by the method of completing the square.
24. In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be the same as the class, in which they are studying. If there are 1 to 12 class in the school and each class has three sections, find how many trees will be planted by the students.