

CBSE Class 10 Maths Most Repeated Questions

Q1. The King, Queen and Jack of clubs are removed from a pack of 52 cards and then the remaining cards are well shuffled. A card is selected from the remaining cards. Find the probability of getting a card

- (i) of spades
- (ii) of black king
- (iii) of clubs
- (iv) of jacks

(CBSE 2014-2017, 2020)

Q2. In $\triangle ABC$, altitude AD and CE intersect each other at the point P . Prove that

- (i) $\triangle APE \sim \triangle CPD$
- (ii) $AP \times PD = CP \times PE$
- (iii) $\triangle ADB \sim \triangle CEB$
- (iv) $AB \times CE = BC \times AD$

(CBSE 2014, 2017, 2020)

Q3. Solve the following pair of linear equations graphically:

$$x + 3y = 6; 2x - 3y = 12$$

Also, find the area of the triangle by the lines representing the given equation with the y-axis. **(CBSE 2012-2020)**

Q4. A passenger, while boarding the plane, slipped from the stairs and got hurt. The pilot took the passenger in the emergency clinic at the airport for treatment. Due to this, the plane got delayed by half an hour. To reach the destination 1500 km away in time, so that the passengers could catch the connecting flight, the speed of the plane was increased by 250 km/hour than the usual speed. Find the usual speed of the plane. **(CBSE 2011-2020)**

Q5. A solid is in the shape of a cone surmounted on a hemisphere, the radius of each of them being 3.5 cm and the total height of solid is 9.5 cm. Find the volume of the solid. [Use $\pi = 22/7$] **(CBSE 2011-2020)**

Q6. A thief runs with a uniform speed of 100 m/minute. After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will catch the thief. **(CBSE 2011, 2012, 2015-2020)**

Q7. The median of the following data is 525. Find the values of x and y, if total frequency is 100:

Class	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4

(CBSE 2011-2020)

Q8. There are 104 students in class X and 96 students in class IX in a school. In a house examination, the students are to be evenly seated in parallel rows such that no two adjacent rows are of the same class.

(a) Find the maximum number of parallel rows of each class for the seating arrangement.

(b) Also find the number of students of class IX and also of class X in a row

(CBSE 2011, 2013, 2015)

Q9. As observed from the top of a 100 m high light house from the sea-level, the angles of depression of two ships are 30° and 45° . If one ship is exactly behind the other on the same side of the light house, find the distance between the two ships. [Use $\sqrt{3} = 1.732$] **(CBSE 2011-2020)**

Q10. Prove that:

$$(1 + \cot A + \tan A)(\sin A - \cos A) = \sec^3 A - \operatorname{cosec}^3 A / \sec^2 A \cdot \operatorname{cosec}^2 A$$

(CBSE 2011-2020)

Q11. Prove that $(2+\sqrt{3})/5$ is an irrational number, given that $\sqrt{3}$ is an irrational number.

Q12. If sides AB, BC and median AD of $\triangle ABC$ are proportional to the corresponding sides PQ, QR and median PM of $\triangle PQR$, show that $\triangle ABC \sim \triangle PQR$.

Q13. Two people are 16 km apart on a straight road. They start walking at the same time. If they walk towards each other with different speeds, they will meet in 2 hours. Had they walked in the same direction with same speeds as before, they would have met in 8 hours. Find their walking speeds.

Q14. If -4 is a root of the equation $x^2 + 2x + 4p = 0$. Find the value of k for which the quadratic equation $x^2 + px(1+3k) + 7(3+2k) = 0$ has equal roots.

Q15. The ratio of the 11th term to the 18th term of an A.P. is 2: 3. Find the ratio of the 5th term to the 21st term. Also, find the ratio of the sum of first 5 terms to the sum of first 21 terms.

Q16. A bird is sitting on the top of a 80 m high tree. From a point on the ground, the angle of elevation of the bird is 45° . The bird flies away horizontally in such a way that it remained at a constant height from the ground. After 2 seconds, the angle of elevation of the bird from the same point is 30° . Find the speed of the flying bird. (Use $\sqrt{3} = 1.732$)

Q17. In the given figure, from a point P, two tangents PT and PS are drawn to a circle with centre O such that $\angle SPT = 120^\circ$, Prove that $OP = 2PS$.

