**Sample Exam Paper Maths Class 10**

1. Choose the correct option – 1 \* 6 = 6
   1. HCF (12, 15) –
      1. 4 ii. 3 iii. 10 iv. 5
   2. Lines x – 2y = 0 and 3x + 4y – 20 = 0 are –
      1. Intersecting ii. Coincide iii. Parallel iv. none of these
   3. In an arithmetic progression d = –4, n = 7, and an = 4, then find the value of ‘a’ will be –
      1. 6 ii. 7 iii. 20 iv. 28
   4. The height of a tree and its shadow are equal, then its angle of elevation is –
      1. 30o ii. 60o iii. 90o iv. 45o
   5. Solution of equation (x – 2)2 = 0 is –
      1. –2 ii. 2 iii. 2, 2 iv. –2, –2
   6. If 1st 2 terms of an A.P. are –3 and 4, then the 21st term will be –
      1. –143 ii. 143 iii. 137 iv. 17
2. Fill in the blanks – 1 \* 6 = 6
   1. The probability of a sure event is always \_\_\_\_\_\_\_\_\_\_.
   2. is a \_\_\_\_\_\_\_\_\_\_ number.
   3. Zero of the linear polynomial ax + b = 0 is \_\_\_\_\_\_\_\_\_\_.
   4. The value of π was given by the mathematician \_\_\_\_\_\_\_\_\_\_.
   5. \_\_\_\_\_\_\_\_\_\_ is the unit of central tendency which gives the value of middle in the given data.
   6. Sum of zeroes of polynomial x2 – 4x + 1 is \_\_\_\_\_\_\_\_\_\_.
3. Write true / false for the following – 1 \* 6 = 6
   1. The angle of elevation increases while the length of the shadow decreases.
   2. Hypotenuse if the longest side in a right angled triangle.
   3. When we look above the horizontal plane, the angle between the line of sight and the horizontal line is angle of depression.
   4. Angle of elevation is always an obtuse angle.
   5. Line joining the point of object from observer’s eye is called the line of sight.
   6. is a rational number.
4. Match the columns – 1 \* 6 = 6

|  |  |
| --- | --- |
| Column A | Column B |
| 1. tan θ | 1. 1 |
| 1. sin2(25o) + cos2(25o) | 1. 1 / sin θ |
| 1. sin 45o + cos 45o | 1. cos θ |
|  | 1. sin θ / cos θ |
| 1. sec θ / tan θ |  |
|  |  |

1. Answer in one word / one sentence – 1 \* 6 = 6
   1. Write the formula of discriminant of the quadratic equation ax2 + bx + c = 0.
   2. Write the value of x in x(x – 1) = 0.
   3. What is the sum of the 8 terms of the series 5, 10, 15?
   4. Write the formula for the sum of n terms of an A.P.
   5. What is the probability of impossible events?
   6. If the discriminant of quadratic equation is 0, then what is the nature of the roots?
2. Find HCF (15, 12, 21) by prime factorization. 2

OR

Find LCM (8, 9, 25) by prime factorization.

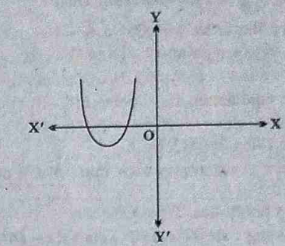
1. Prove that 5 – is irrational. 2

OR

Prove that 3 is irrational number.

1. Find a quadratic polynomial, the sum and product of whose zeroes are –3 and 2. 2

OR

The graph of polynomial y = p(x) is given in the figure. Find the number of zeroes of p(x).

1. Find the zeroes of the quadratic polynomial 6x2 – 3 – 7x. 2

OR

Find the zeroes of the polynomial x2 + 7x + 10 and the relationship between the zeroes and the coefficients.

1. Find out whether the linear equations 5x – 4y + 8 = 0, and 7x + 6y – 9 = 0 intersect at a point, are parallel or coincident. 2

OR

Find out whether 3x + 2y = 5, and 2x – 3y = 7 are consistent or inconsistent.

1. Find 2 numbers whose sum is 17 and product is 72. 2

OR

Solve the following equation by factorization method : = 0.

1. Find the number of terms in the following A.P. : 7, 13, 19, ……., 205. 2

OR

Which term of the A.P. : 3, 8, 13, 18, …… is 78?

1. Find the 31st term of an A.P. whose 11th term is 38 and 16th term is 73. 2

OR

Find the sum of 1st 15 multiples of 8.

1. Find the value of k for the quadratic equation 2x2 + kx + 3 = 0 to have equal roots. 2

OR

Find the roots of the quadratic equation 6x2 – x – 2.

1. If ∠A and ∠B are acute angles such that cos A = cos B, then show that ∠A = ∠B. 2

OR

Evaluate the following : sin 60o cos 30o + sin 30o cos 60o.

1. Harpreet tosses 2 coins simultaneously. What is the probability that she gets at least 2 heads? 2

OR

A die is thrown once. What is the probability of getting a number greater than 4?

1. A box contains 3 blue, 2 white and 4 red marbles. A marble is drawn at random from the box. What is the probability of getting – a. white?, b. red?, and c. blue? 2

OR

If P (E) = 0.81, then what is the probability of ‘not’ E?

1. The angle of elevation of the top of a tower from a point on the ground, which is 30 m away from the foot of the tower is 30o. Find the height of the tower. 3

OR

A kite is flying at a height of 60 m 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 60o. Find the length of the string, assuming that there is no slack in the string.

1. From the point P on the ground, the angle of elevation of the top of a 10 m tall building is 30o. A flag is hoisted at the top of the building and the angle elevation of the top of the flagstaff from P is 45o. find the length of the flagstaff and the distance of the building from the point P. 3

OR

The angle of elevation of the top of a tower from a point on the ground, which is 15 m away from the foot of the tower is 60o. Find the height of the tower.

1. From the top of a 7 m high building, the angle of elevation of the top of a cable tower is 60o and angle of depression of its foot is 45o. Determine the height of the tower. 3

OR

An observer 1.5 m tall is 20.5 m away from a chimney. The angle of elevation of the top of the chimney from his eyes is 45o. find the height of the chimney.

1. Solve the equations by the elimination method : 3x + 4y = 10 and 2x – 2y = 2 4

OR

The larger of 2 supplementary angles exceeds the smaller by 18o, find them.

1. If we add 1 to the numerator and subtract 1 from the denominator of a fraction, we get 1. But, if we only add 1 to the denominator of the same fraction, we get . Find the fraction. 4

OR

Solve the following linear pair of equations : 3x + y = 10 and 2x + 2y = 12.

1. Consider the following distribution of daily wages of 50 workers of a factory. Find the mean daily wages of the workers of the factory. 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Daily Wages (in Rs.)** | 500 – 520 | 520 – 540 | 540 – 560 | 560 – 580 | 580 – 600 |
| **Number of workers** | 12 | 14 | 8 | 6 | 10 |

OR

The following table shows the ages of the patients admitted in a hospital during a year. Find the median age of patients.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Age (in yrs.)** | 5 – 15 | 15 – 25 | 25 – 35 | 35 – 45 | 45 – 55 | 55 – 65 |
| **Number of patients** | 6 | 11 | 21 | 23 | 14 | 5 |