**GUESS PAPER-2012**

**CLASS-X**

**Subject Mathematics**

Time: 2 Hrs Max. Marks: 80

***Section A***(1 marks each)

1. HCF of 75 and 243 is

(a) 12 (b) 3 (c) 9 (d) 5

1. Sum of zeros of polynomial 4x2 − 5x – 1 is

(a) 4/5 (b) 1/5 (c) - 1/4 (d) 5/4

1. If AB2 = AC2 + BC2 then right angle is

(a) A (b) B (c) C (d) D

1. What is the value of cot2 θ – cosec2 θ?
2. 2 (b) 0 (c) - 1 (d) 1
3. If sin θ = 1 then θ is
4. 75°. (b) 90° (c) 30° (d) 45°
5. 4q + 1 or 4q + 3, are some integer represent

(a) even (b) odd (c) prime (d) irrational

1. If cot θ =  find value of Sin2 θ + Cos2 θ.

(a) 2 (b) 3 (c) - 1 (d) 1

1.  is the formula of

(a) Mean (b) Median (c) Mode (d) None of these

1. The value of ‘k’ for which the following system of linear equation has infinite solution: x + (k + 1) y = 5 and (k + 1) x + 9y = 8k –1.

(a) 2 (b) −23/8 (c) − 3 (d) − 4

1. Find value of cos2 (90 – θ)+ cos2 θ.
2. 2 (b) 3 (c) - 1 (d) 1

***Section B***(2 marks each)

1. Explain why 7 × 6 × 5 × 4 × 3 × 2 × 1 + 5 is a composite number:
2. Prove that 6 – 5√3 is irrational number.
3. Prove: sec2 θ + cosec2 θ = sec2 θ cosec2 θ

Or

If cos α =  find the value of tan2 α + 1.

Fig 1 A

B D C

1. Manjari had some dogs and ducks. If her animals had 16 eyes and 26 feets. Find no. of dogs and ducks.
2. Prove that AB2 – BD2 = AC2 – CD2 in given figure in which AD ⊥ BC.
3. Find the mode of following data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| C. I. | 0 − 10 | 10 − 20 | 20 − 30 | 30 − 40 | 40 − 50 |
| frequency | 8 | 10 | 9 | 12 | 11 |

1. find BC if ΔABC and ΔPQR have areas 64 cm2 and 121 cm2 respectively and ∠A = ∠P, ∠C = ∠R and QR = 15.4.
2. The Marks of 50 students of class seventh are given below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 – 5 | 5 – 10 | 10 – 15 | 15 – 20 | 20 – 25 | 25 – 30 | 30 – 35 | 35 – 40 | total |
| frequency | 5 | 11 | 5 | 9 | 10 | 3 | 2 | 5 | 50 |

***Section C***(3 marks each)

1. Find zero’s of polynomial *x2 + 7x + 10*

Or

Write a quadratic polynomial whose zeroes are 5 and – 5.

1. Prove that  is irrational number.
2. A train covered a certain distance at a uniform speed. If the train had been 6 Km/h faster, it would have taken 4

hours less than the scheduled time. And, if the train were slower by 6 km/h, the train would have taken 6 hours more than the scheduled time. Find the length of the journey.

Or

A jeweler has bars of 18 carat gold and 12 carat gold. How much of each must be melted together to obtain a bar of 16 carat gold. Weighing 120 gm? It is given that pure gold is 24 carat.

1. Show that the tan 1° tan2° tan3° tan87° tan88° tan89° = 1.
2. If α and β are the zeroes of x2 - 7x + 12, Find the value of .
3. Prove that: 
4. Find the Arithmetic mean of the following data by step deviation method.

Marks obtained No. of students

Less than 10 12

Less than 20 19

Less than 30 35

Less than 40 47

Less than 50 58

Less than 60 65

Less than 70 84

Less than 80 100

1. Prove that in given figure  in given figure.
2. pythagoras 1P and Q are two points on the sides AB and AC respectively of ΔABC. If AP = 2cm, PB = 4cm, AQ = 3cm and QC = 6 cm, show that BC = 3 PQ.
3. The following table shows marks secured by 140 students in an examination:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 – 10 | 11 – 20 | 21 – 30 | 31 – 40 | 41 - 50 |
| Amount Spent (In Rs.) | 600 | 4000 | 1200 | 400 | 1000 |

Calculate median and draw ogive of above data.

***Section D*** *(*4 marks each)

1. Prove that the ratio of areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.

Or

State and Prove Pythagoras Theorem.

1. If the median of the distribution given below is 28.5, find the value of x and y

|  |  |
| --- | --- |
| Class interval | Frequency |
| 0 – 10 | 5 |
| 10 – 20 | X |
| 20 – 30 | 20 |
| 30 – 40 | 15 |
| 40 – 50 | Y |
| 50 – 60 | 5 |
| Total | 60 |

1. Find the value of , When tan θ = .

Or

Prove that 

1. Solve for a and b: 2a + 3b = 17 and 2a+2 − 3b+1 = 5.
2. If (x – 4) is a factor of and a – b = 8, find the value of a and b.
3. Draw the graph of *x* + 2y – 7 = 0 and 2*x –* y – 4 = 0. Shade the area bounded by these lines and y-a*x*is

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