

# UP Board Class 10 Mathematics Question Paper(Memory Based)

Time Allowed :3 Hour	Maximum Marks :60	Total Questions :24
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## General Instructions

Read the following instructions very carefully and strictly follow them:

- Answers to this Paper must be written on the paper provided separately.
- You will not be allowed to write during the first 15 minutes
- This time is to be spent in reading the question paper.
- The time given at the head of this Paper is the time allowed for writing the answers,
- The paper has four Sections.
- Section A is compulsory - All questions in Section A must be answered.
- You must attempt one question from each of the Sections B, C and D and one other question from any Section of your choice.

1. Find the HCF and LCM of 96 and 404 by the prime factorisation method and verify that  $\text{HCF} \times \text{LCM} = \text{product of the two numbers}$ .

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2. Prove that  $\sqrt{3}$  (or  $\sqrt{5}$ ) is an irrational number.

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3. Find the value of  $k$  for which the quadratic equation  $2x^2 + kx + 3 = 0$  has two equal real roots.

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4. Solve the pair of linear equations  $2x + 3y = 11$  and  $2x - 4y = -24$  using the substitution or elimination method.

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5. If  $\tan(A + B) = \sqrt{3}$  and  $\tan(A - B) = \frac{1}{\sqrt{3}}$ , find the values of  $A$  and  $B$ .

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6. Prove the identity:  $\frac{\cos A}{1 + \sin A} + \frac{1 + \sin A}{\cos A} = 2 \sec A$ .

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7. A 1.5 m tall boy is standing at some distance from a 30 m tall building; find the distance he walked towards the building if the angle of elevation of the top increases from  $30^\circ$  to  $60^\circ$ .

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8. Prove that the lengths of tangents drawn from an external point to a circle are equal.

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9. A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm; find the height of the cylinder.

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