



# TEST PAPER: MATHEMATICS

Time: 50 Minutes

Class: 10<sup>th</sup> C.B.S.E.

Max. Marks: 30 Marks

Date: 1<sup>st</sup> July, 2018

**Marking Scheme:** Each question carries 5 marks each. Solve any 6 out of 8 questions.

1. Prove:

$$\frac{\cos \theta}{1 - \tan \theta} + \frac{\sin \theta}{1 - \cot \theta} = \sin \theta + \cos \theta$$

2. Prove:

$$\frac{\sin \theta}{1 - \cos \theta} = \operatorname{cosec} \theta + \cot \theta$$

3. Prove:

$$\frac{1 - \sin \theta}{\cos \theta} + \frac{\cos \theta}{1 - \sin \theta} = 2 \sec \theta$$

4. Prove:

$$\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta} = 1 + \tan \theta + \cot \theta$$

5. Prove:

$$\frac{\operatorname{cosec} A}{\operatorname{cosec} A - 1} + \frac{\operatorname{cosec} A}{\operatorname{cosec} A + 1} = 2 + 2 \tan^2 A$$

6. Prove:

$$\sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}} + \sqrt{\frac{1 - \sin \theta}{1 + \sin \theta}} = 2 \sec \theta$$

7. Prove:

$$\cot \theta - \tan \theta = \frac{2 \cos^2 \theta - 1}{\sin \theta \cos \theta}$$

8. Prove:

$$\frac{\sin \theta + 1 - \cos \theta}{\cos \theta - 1 + \sin \theta} = \frac{1 - \sin \theta}{\cos \theta}$$