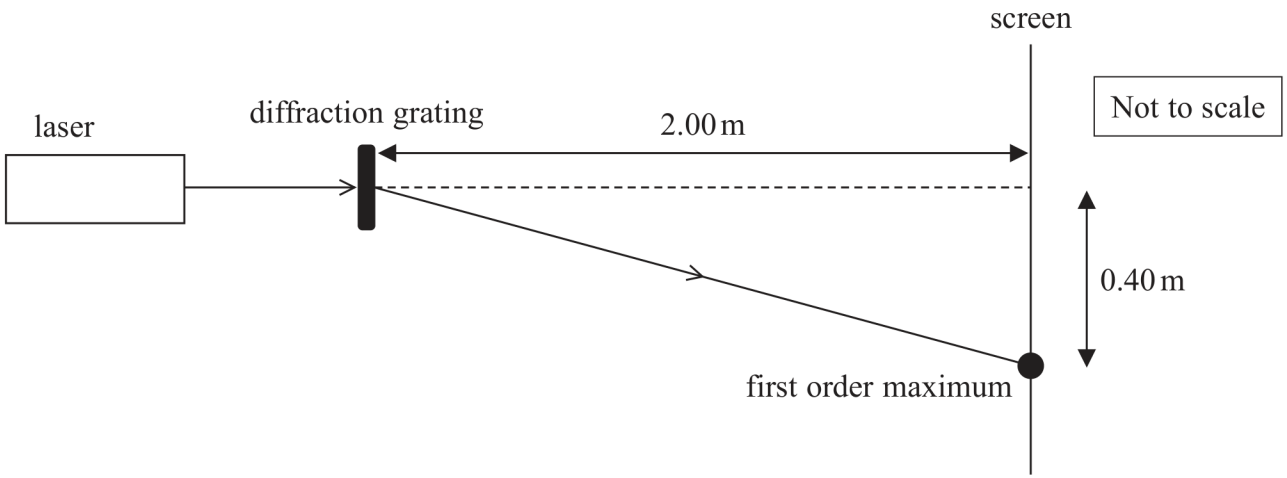
DO NOT WRITE IN THIS AREA

3 A diffraction grating has 300 lines per mm. When laser light is directed towards the diffraction grating, a diffraction pattern is observed on a screen. The position of a first order maximum on the screen is shown in the diagram.



Which of the following calculations should be used to determine the wavelength, in mm, of the laser light used?

☒ **A** $300\sin\theta$ where $\theta = \sin^{-1}\left(\frac{0.40}{2.00}\right)$

☒ **B** $300\sin\theta$ where $\theta = \tan^{-1}\left(\frac{0.40}{2.00}\right)$

☒ **C** $\frac{\sin\theta}{300}$ where $\theta = \sin^{-1}\left(\frac{0.40}{2.00}\right)$

☒ **D** $\frac{\sin\theta}{300}$ where $\theta = \tan^{-1}\left(\frac{0.40}{2.00}\right)$

(Total for Question 3 = 1 mark)