Centum Preparation 100 Days plan class 12 Maths

Q.No.	DAY - 33
193	**Example 5.31** A semielliptical archway over a one-way road has a height of $3m$ and a width of $12m$. The truck has a width of $3m$ and a height of $2.7m$. Will the truck clear the opening of the archway?
194	**Example 5.32** The maximum and minimum distances of the Earth from the Sun respectively are 152×10^6 km and 94.5×10^6 km. The Sun is at one focus of the elliptical orbit. Find the distance from the Sun to the other focus.
195	**Example 5.33** A concrete bridge is designed as a parabolic arch. The road over bridge is $40m$ long and the maximum height of the arch is $15m$. Write the equation of the parabolic arch.
196	**Example 5.35** The equation $y=\frac{1}{32}x^2$ models cross sections of parabolic mirrors that are used for solar energy. There is a heating tube located at the focus of each parabola; how high is this tube located above the vertex of the parabola?
197	**Example 5.36** A search light has a parabolic reflector (has a cross section that forms a 'bowl'). The parabolic bowl is $40\,cm$ wide from rim to rim and $30\,cm$ deep. The bulb is located at the focus . (1) What is the equation of the parabola used for reflector? (2) How far from the vertex is the bulb to be placed so that the maximum distance covered?

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Example 5.37

An equation of the elliptical part of an optical lens system is $\frac{x^2}{16}+\frac{y^2}{9}=1$. The parabolic part of the system has a focus in common with the right focus of the ellipse . The vertex of the parabola is at the origin and the parabola opens to the right. Determine the equation of the parabola.