3.
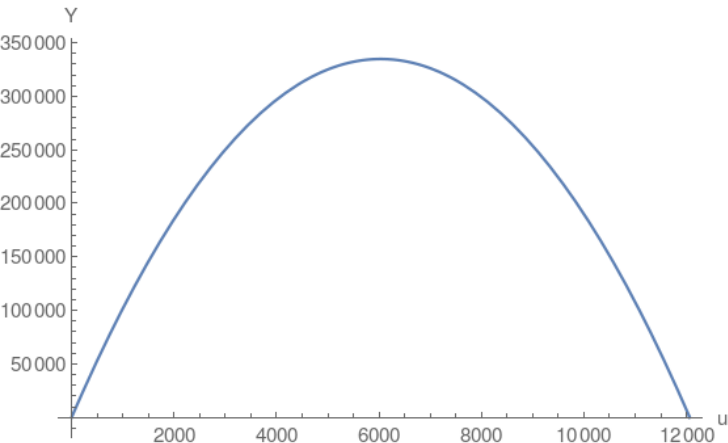
3. (1) To find the MIN/MAX, first calculate the vertex:

$$\text{vertex} = \frac{-111}{2\frac{(-23)}{50^2}} = \frac{138750}{23}$$

since the height Y of the projectile is governed by a Parabola formula.