

$$Var(X) = E(X^2) - E^2(X)$$

$$= \int_{\theta_1}^{\theta_2} \frac{x^2}{\theta_2 - \theta_1} dx - \frac{(\theta_1 + \theta_2)^2}{4}$$

$$= \frac{1}{\theta_2 - \theta_1} \left(\frac{1}{3} x^3 \right)_{\theta_1}^{\theta_2} - \frac{\theta_1^2 + \theta_2^2 + 2\theta_1\theta_2}{4}$$

$$= \frac{1}{3} \frac{\theta_2^3 - \theta_1^3}{\theta_2 - \theta_1} - \frac{\theta_1^2 + \theta_2^2 + 2\theta_1\theta_2}{4}$$

Ex. Simplify above expression.