B1

$$a = \frac{2s}{t^2}$$

$$\frac{\partial a}{\partial s} = \frac{2}{t^2} \qquad s\frac{\partial a}{\partial s} = \frac{2s}{t^2}$$

$$\boxed{\frac{\partial a}{\partial s} = \frac{a}{s}}$$

$$\frac{\partial a}{\partial t} = -2\left(\frac{2s}{t^3}\right) \qquad t\frac{\partial a}{\partial t} = -2\left(\frac{2s}{t^2}\right)$$

$$\frac{\partial a}{\partial t} = -2\left(\frac{a}{t}\right)$$

$$\sigma_a^2 = \left(\frac{a}{s}\right)^2 \sigma_s^2 + \left(-\frac{2a}{t}\right)^2 \sigma_t^2$$

$$\sigma_a^2 = \left(\frac{a}{s}\right)^2 \sigma_s^2 + 4\left(\frac{a}{t}\right)^2 \sigma_t^2$$

CASE I

$$s = 0.7864 \pm 0.0005 m$$

$$t = \sqrt{\frac{2s}{a}} = \sqrt{\frac{2(0.7864)}{9.81}} = 0.40041 \pm 0.00030 s$$

$$\sigma_a^2 = \left(\frac{9.81}{0.7864}\right)^2 \left(0.0005\right)^2 + \left(\frac{9.81}{0.40041}\right)^2 \left(0.00030\right)^2$$

$$\boxed{\sigma_a = 0.0160 \, m/s^2}$$

CASE II

$$s = 96.2 \pm 0.20\,m$$

$$t = \sqrt{\frac{2s}{a}} = \sqrt{\frac{2(96.2)}{9.81}} = 4.429 \pm 0.005\,s$$

$$\sigma_a^2 = \left(\frac{9.81}{96.2}\right)^2 (0.20)^2 + 4\left(\frac{9.81}{4.429}\right)^2 (0.005)^2$$

$$\boxed{\sigma_a = 0.0301\,m/s^2}$$

CASE I YIELDS LOWER σ_a