

$$\cos\alpha = V_2/V_1 = 1/3 \quad \cos\alpha = \frac{V_2}{V_1} = \frac{1}{3}$$

$$\sin\alpha = \sqrt{1 - \cos^2\alpha} = \sqrt{1 - \frac{1}{9}} = \sqrt{\frac{8}{9}} = \frac{2}{3}\sqrt{2}$$

$$\sin\alpha = \frac{V}{V_1}$$

$$V_1 * \sin\alpha = V$$

$$V = 3 \frac{m}{s} \frac{2}{3} \sqrt{2} = 2\sqrt{2} m/s$$

$$d = 100m$$

$$t = d/V = 100m / 2\sqrt{2}m/s = 35.3s$$

