

1° Honors Physics - Kinematics quiz 2 09-20-02

Find the displacement of a bus that speeds up from 10.5 m/s to 35.0 m/s if its acceleration is 1.50 m/s².

$$\Delta X = \underline{\hspace{2cm}} \text{ m}$$

$$V_i = 10.5 \frac{\text{m}}{\text{s}}$$

$$V_f = 35.0 \frac{\text{m}}{\text{s}}$$

$$a = 1.50 \frac{\text{m}}{\text{s}^2}$$

$$V_f^2 = V_i^2 + 2a\Delta X$$

$$\Delta X = \frac{V_f^2 - V_i^2}{2a}$$

$$= \frac{(35.0 \frac{\text{m}}{\text{s}})^2 - (10.5 \frac{\text{m}}{\text{s}})^2}{2(1.50 \frac{\text{m}}{\text{s}^2})}$$

$$\boxed{\Delta X = 372 \text{ m}}$$

3° Honors Physics - Kinematics quiz 2 09-20-02

Find the displacement of a bus that speeds up from 12.5 m/s to 27.5 m/s if its acceleration is 1.75 m/s².

$$\Delta X = \underline{\hspace{2cm}} \text{ m}$$

$$V_i = 12.5 \frac{\text{m}}{\text{s}}$$

$$V_f = 27.5 \frac{\text{m}}{\text{s}}$$

$$a = 1.75 \frac{\text{m}}{\text{s}^2}$$

$$V_f^2 = V_i^2 + 2a\Delta X$$

$$\Delta X = \frac{V_f^2 - V_i^2}{2a}$$

$$= \frac{(27.5 \frac{\text{m}}{\text{s}})^2 - (12.5 \frac{\text{m}}{\text{s}})^2}{2(1.75 \frac{\text{m}}{\text{s}^2})}$$

$$\boxed{\Delta X = 171 \text{ m}}$$

8° Honors Physics - Kinematics quiz 2 09-20-02

Find the displacement of a bus that speeds up from 15.0 m/s to 31.2 m/s if its acceleration is 2.25 m/s².

$$\Delta X = \underline{\hspace{2cm}} \text{ m}$$

$$V_i = 15.0 \frac{\text{m}}{\text{s}}$$

$$V_f = 31.2 \frac{\text{m}}{\text{s}}$$

$$a = 2.25 \frac{\text{m}}{\text{s}^2}$$

$$V_f^2 = V_i^2 + 2a\Delta X$$

$$\Delta X = \frac{V_f^2 - V_i^2}{2a}$$

$$= \frac{(31.2 \frac{\text{m}}{\text{s}})^2 - (15.0 \frac{\text{m}}{\text{s}})^2}{2(2.25 \frac{\text{m}}{\text{s}^2})}$$

$$\boxed{\Delta X = 166 \text{ m}}$$