

Kinematics Chapter 2 Problems

Motion at constant speed

- 1) $v \times t = d \therefore v = \frac{d}{t} = \frac{80 \text{ m}}{5 \text{ s}} = \boxed{16 \frac{\text{m}}{\text{s}} = 2 \times 10^1 \frac{\text{m}}{\text{s}}}$
- 2) $v \times t = d \quad d = 25 \frac{\text{m}}{\text{s}} \cdot 50 \text{ s} = \boxed{1250 \text{ m} = 1.3 \times 10^3 \text{ m}}$
- 3) $v \times t = d \therefore t = \frac{d}{v} = \frac{120 \text{ m}}{4 \frac{\text{m}}{\text{s}}} = \boxed{30 \text{ s} = 3 \times 10^1 \text{ s}}$
- 4) $v = \frac{d}{t} = \frac{900 \text{ m}}{15 \text{ s}} = \boxed{60 \frac{\text{m}}{\text{s}}}$
- 5) $d = v \times t = 15 \frac{\text{m}}{\text{s}} \cdot 10 \text{ s} = \boxed{150 \text{ m} = 1.5 \times 10^2 \text{ m}}$
- 6) $t = \frac{d}{v} = \frac{1500 \text{ mi}}{600 \text{ mi/hr}} = \boxed{2.50 \text{ hr.}}$
- 7) $v = \frac{d}{t} = \frac{240 \text{ m}}{64 \text{ s}} = \boxed{4.1 \frac{\text{m}}{\text{s}}}$
- 8) $d = v \cdot t = 8.5 \frac{\text{m}}{\text{s}} \cdot 240 \text{ s} = \boxed{2040 \text{ m} = 2.0 \times 10^3 \text{ m}}$
- 9) $t = \frac{d}{v} = \frac{25 \text{ m}}{12 \frac{\text{m}}{\text{s}}} = \boxed{2.1 \text{ s}}$
- 10) $v = \frac{d}{t} = \frac{160 \text{ m}}{60 \text{ sec}} = \boxed{2.7 \frac{\text{m}}{\text{s}}}$
- 11) $d = v \times t = 50 \frac{\text{m}}{\text{s}} \cdot 120 \text{ s} = \boxed{6000 \text{ m} = 6.0 \times 10^3 \text{ m}}$
- 12) $t = \frac{d}{v} = \frac{1000 \text{ m}}{12 \frac{\text{m}}{\text{s}}} = \boxed{83 \text{ s}}$
- 13) $v = \frac{d}{t} = \frac{1600 \text{ km}}{24 \text{ hr.}} = \boxed{67 \frac{\text{km}}{\text{hr}}}$
- 14) $v = \frac{d}{t} = \frac{600 \text{ m}}{40 \text{ s}} = \boxed{15 \frac{\text{m}}{\text{s}}}$
- 15) $d = v \times t = 50 \frac{\text{km}}{\text{hr}} \cdot 0.25 \text{ hr} = \boxed{12.5 \text{ km} = 1.3 \times 10^1 \text{ km}}$
- 16) $t = \frac{d}{v} = \frac{10 \text{ m}}{0.5 \frac{\text{m}}{\text{s}}} = \boxed{20 \text{ s}}$