PhysicsDrill / Formula Pack

Physics I mechanics | 32 worked concepts

01 POSITION AND VELOCITY

Displacement

$$\Delta x = x_f - x_i$$

WHEN TO USE:

Signed change along an axis.

TRY IT:

$x_i = 2\,\text{m},\ x_f = 14\,\text{m}$

WORK:

$\Delta x = 14 - 2 = 12\,\text{m}$

ANSWER:

12 m

Average velocity

$$\bar{v} = \frac{\Delta x}{\Delta t}$$

WHEN TO USE:

Displacement per time, with direction.

TRY IT:

$\Delta x = 12\,\text{m},\ \Delta t = 3\,\text{s}$

WORK:

$\bar{v} = 12/3 = 4\,\text{m/s}$

ANSWER:

4 m/s

Average speed

$$\bar{s} = \frac{\text{distance}}{\Delta t}$$

WHEN TO USE:

Total path length per time.

TRY IT:

$d = 20\,\text{m},\ \Delta t = 4\,\text{s}$

WORK:

$\bar{s} = 20/4 = 5\,\text{m/s}$

ANSWER:

5 m/s

Average acceleration

$$\bar{a} = \frac{v_f - v_i}{\Delta t}$$

WHEN TO USE:

Velocity change per time.

TRY IT:

$v_i = 2,\ v_f = 10\,\text{m/s};\ t = 4\,\text{s}$

WORK:

$\bar{a} = (10 - 2)/4 = 2\,\text{m/s}^2$

ANSWER:

2 m/s²

SAMPLE

Watermarked sample - full pack: 8 pages / 32 concepts