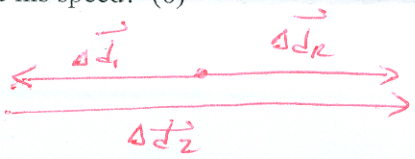
using the combined method. (7)

2. A hot air balloon flew 12 h at an average speed of 210 km/h. How far did it travel? (6)

3. A race car accelerates at 5.0 m/s^2 [W]. If its initial velocity is 56 m/s [W], how far has it travelled after 8.0 s? (6)

4. A truck is travelling at 22 m/s when the driver notices a speed limit sign for the town ahead. He slows down to a speed of 14 m/s. He travels a distance of 125 m while he is slowing down. How long did it take the truck driver to change his speed? (6)

1. $\Delta\vec{d}_1 = -35m$
$\Delta\vec{d}_2 = +67m$ ①
$\Delta\vec{d}_R = ?$



②

$\Delta\vec{d}_R = \Delta\vec{d}_{R_1} + \Delta\vec{d}_{R_2}$ ①

$\Delta\vec{d}_R = -35m + 67m$ ①

$\Delta d_R = 32m$ ①

The resultant displacement of the shopper was 32m, East ①

7

2. $V_{ave} = 210\ km/h$
$t = 12h$ ①
$d = ?$

$V_{ave} = \frac{d}{t}$ ①

$d = V_{ave}\,t$ ①

$d = 210\ km/h \times 12h$ ①

$d = 2520km$ ①

$d = 2.5 \times 10^3 km$

The hot air balloon ① travelled 2.5×10^3 km. ①

6

3. $\vec{a} = -5.0 m/s^2$ ①
$\vec{v}_i = -56 m/s$ ①
$t = 8.0s$
$\vec{d} = ?$

$\vec{d} = \vec{v}_i t + \frac{1}{2}\vec{a}t^2$ ①

$\vec{d} = (-56 m/s)(8.0s) + \frac{1}{2}(-5.0 m/s^2)(8.0s)^2$ ①

$\vec{d} = 608m$

$\vec{d} = 6.1 \times 10^2 m$ ①

The race car travelled 6.1×10^2 m. ①

6

4. $\vec{v}_i = 22 m/s$
$\vec{v}_f = 14 m/s$
$\vec{d} = 125m$
$t = ?$

$\vec{d} = \frac{1}{2}(\vec{v}_i + \vec{v}_f)t$

$\frac{2\vec{d}}{\vec{v}_i + \vec{v}_f} = t$

$t = \frac{2(125)}{(22 + 14)}$

$t = 6.9s$

It took the driver 6.9s to change his speed.