No.

Date

Ch.2

42. (a) $V_{车}=120km/h=\frac{100}{3}m/s$.

2s内 $x_{警车}=v_0t-\frac{1}{2}at^2=\frac{170}{3}m$

$x_{车}=v_{车}t=\frac{100}{3}\times2=\frac{200m}{3}$ $\therefore \Delta x_1=10m$.

$\therefore \Delta x=x_{警}-\Delta x_1=15m$.

(b) $t_1=0.4s$ 此时 $v_{警}=v_0-a\cdot t=\frac{100}{3}-2\times5=\frac{70}{3}m/s$

$x_{警}'=\frac{14}{3}\times\frac{2}{5}-\frac{1}{2}\times5\times\frac{4}{25}=\frac{28}{3}-\frac{2}{5}=\frac{134}{15}m$

$x_{车}=\frac{2}{5}\times\frac{100}{3}=\frac{40}{3}m$ $\Delta x'=|\frac{134-200}{15}|=\frac{66}{15}m$.

$\therefore \Delta x_1=\Delta x-\Delta x'=\frac{159}{15}m$.

$\Delta v=\frac{12}{5}\times5=12m/s$.

$\therefore t_{接}=\frac{\Delta x_1}{\Delta v}=\frac{159}{180}s$.

$\therefore v=v_0-a\cdot t=\frac{100}{3}-5\times\frac{159}{180}=\frac{1041}{36}\approx28.9m/s$.

(46. 承重+加速向 $g=10m/s^2$

$v=\sqrt{v_0^2+2gh}=46m/s$.

$t=\frac{46}{10}+\frac{16}{10}=6s$) ×

47. $g=10m/s^2$ $v=\sqrt{v_0^2+2gh}=46m/s$

$t=\frac{v}{g}+\frac{v_0}{g}=6s$.

68. $N=\frac{10\times10m}{2}+\frac{(10+4m)\times10}{2}+\frac{10\times200}{2}$.

$=500+2500+2000=5000m/s$