1. $\surd = 3{,}125$

(a) $v(t) = v_0 + at$ ✓

$t_1 = 2{,}7\,s \rightarrow v(t_1) = 0\,m/s + 0{,}25\,m/s^2 \cdot 2{,}7\,s = 0{,}675\,m/s$ ✓

$t_2 = 7{,}3\,s \rightarrow v(4\,s) = 0{,}25\,m/s^2 \cdot 4\,s = 1\,m/s$

$v(7{,}3\,s) = 1\,m/s - 0{,}75\,m/s^2 \cdot (7{,}3\,s - 4\,s) = -1{,}475\,m/s$ ✓

(b) $x(t) = x_0 + v_0 t + \frac{at^2}{2}$ ✓ , $t = 14{,}5\,s$

i) $t = 0 \rightarrow 4\,s$: $x(4\,s) = \frac{1}{2}\,0{,}25\,m/s^2 \cdot (4\,s)^2 = +2\,m$

$v(4\,s) = 1\,m/s$

ii) $t = 4\,s \rightarrow 8\,s$: $x(8\,s) = 2\,m + 1\,m/s \cdot 4\,s - \frac{1}{2}\,0{,}75\,m/s^2 \cdot (4\,s)^2 = 0\,m$

$v(8\,s) = 1\,m/s - 0{,}75\,m/s^2 \cdot 4\,s = -2\,m/s$

iii) $t = 8\,s \rightarrow 14{,}5\,s$: $x(14{,}5\,s) = 0\,m - 2\,m/s \cdot 6{,}5\,s + \frac{1}{2}\,0{,}5\,m/s^2 \cdot (6{,}5\,s)^2 =$

$14{,}5\,s - 8\,s = 6{,}5\,s$

$= -2{,}44\,m$ ✓ položaj.

Pot : telo spremeni smer gibanja (hitrost spremeni predznak) pri:

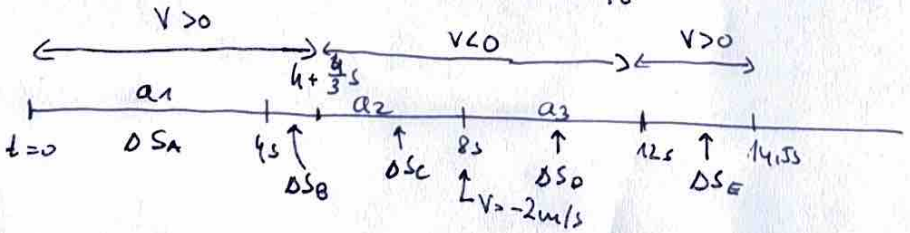
$v = at + v_0$

$v = 0$

$t = -\frac{v_0}{a}$

$t' = -\frac{v(4\,s)}{a_2} = -\frac{1\,m/s}{-0{,}75\,m/s^2} = +\frac{1}{3/4}\,s = \frac{4}{3}\,s \rightarrow$ pri $4\,s + \frac{4}{3}\,s$

$t'' = -\frac{v(8\,s)}{a_3} = -\frac{-2\,m/s}{0{,}5\,m/s^2} = +4\,s \rightarrow$ pri $8\,s + 4\,s = 12\,s$



$\Delta s_A = \frac{1}{2} 0{,}25\,m/s^2 \cdot (4\,s)^2 = 2\,m$

$\Delta s_B = 1\,m/s \cdot \frac{4}{3}\,s - \frac{1}{2} 0{,}75\,m/s^2 \cdot \left(\frac{4}{3}\,s\right)^2 = \frac{2}{3}\,m$

$\Delta s_C = \left| 0\,m/s \cdot \frac{8}{3}\,s - \frac{1}{2}\,0{,}25\,m/s^2 \cdot \left(\frac{8}{3}\,s\right)^2 \right| = \frac{8}{3}\,m$

$\left(4 - \frac{4}{3}\right) s = \frac{8}{3}\,s$

$\Delta s_D = \left| -2\,m/s \cdot 4\,s + \frac{1}{2} 0{,}5\,\frac{m}{s^2} \cdot (4\,s)^2 \right| = 4\,m$

$12\,s - 8\,s$

$\Delta s_E = 0\,m/s \cdot 2{,}5\,s + \frac{1}{2} 0{,}5\,m/s^2 \cdot (2{,}5\,s)^2 = 1{,}56\,m$

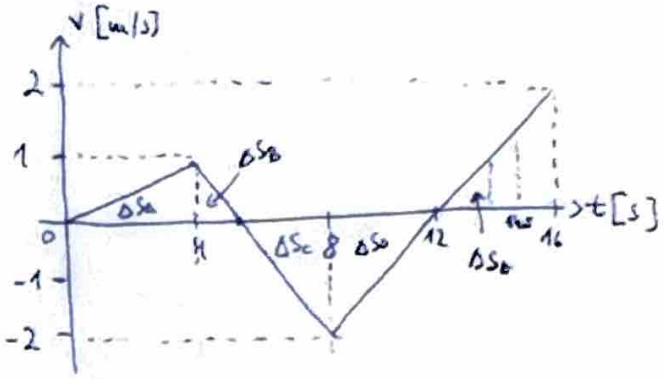
$14{,}5\,s - 12\,s = 2{,}5\,s$

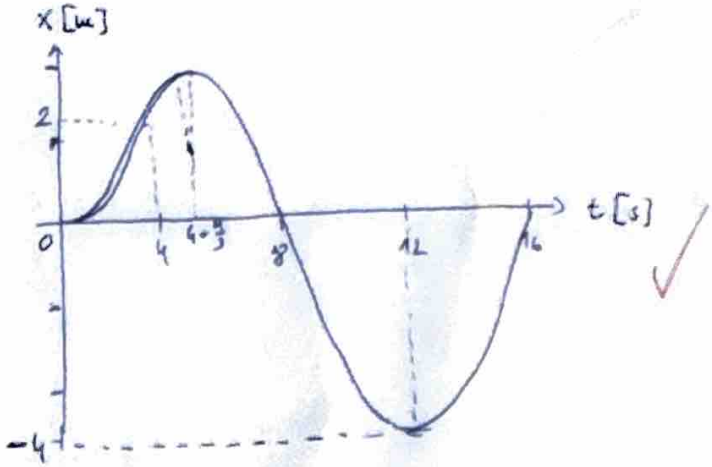
$s = \Delta s_A + \Delta s_B + \Delta s_C + \Delta s_D + \Delta s_E$

$\approx 10{,}9\,m$ ✓

ALTERNATIVNO : Ploščina pod grafom $v(t)$

(c)


v [m/s]
2
1
0
-1
-2
ΔSa
ΔSb
ΔSc
ΔSd
ΔSe
ΔSf
4
8
12
16
t [s]


x [m]
2
0
-4
4
4+8/3
8
12
16
t [s]