

Αδυν. 18 6ελ. 71.



A. $S = \frac{1}{2} a_1 t^2$ (για το αυτοκίνητο)

$S = \frac{1}{2} a_2 (t-4)^2$ (για τη μηχανή)

B. $v_1 = a_1 t = 1,6 \cdot 20 \Rightarrow v_1 = 32 \text{ m/s}$ (αυτοκίνητο)

$v_2 = a_2 t = 2,5 \cdot 16 \Rightarrow v_2 = 40 \text{ m/s}$ (μηχανή)

Αρα: $\frac{1}{2} a_1 t^2 = \frac{1}{2} a_2 t^2 \Rightarrow 1,6 \cdot t^2 = 2,5 \cdot (t-4)^2 \Rightarrow$
 $16t^2 = 25(t-4)^2 \Rightarrow (5(t-4))^2 = (4t)^2$

$a^2 = b^2 \Leftrightarrow a = \pm b$

Αρα 1^η λύση:

$5(t-4) = 4t \Rightarrow 5t - 20 = 4t \Rightarrow t = 20 \text{ sec}$
 8ερωτ.

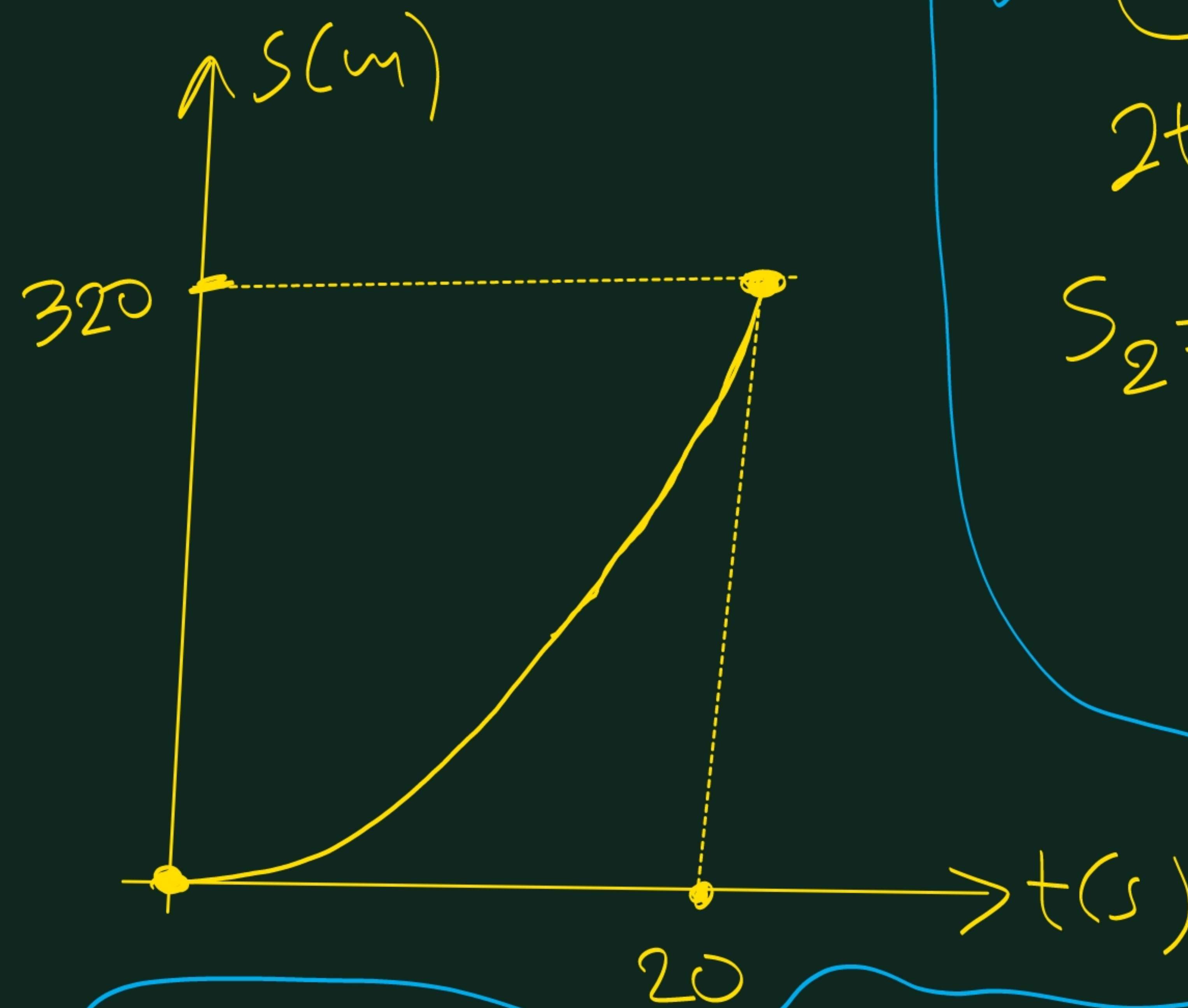
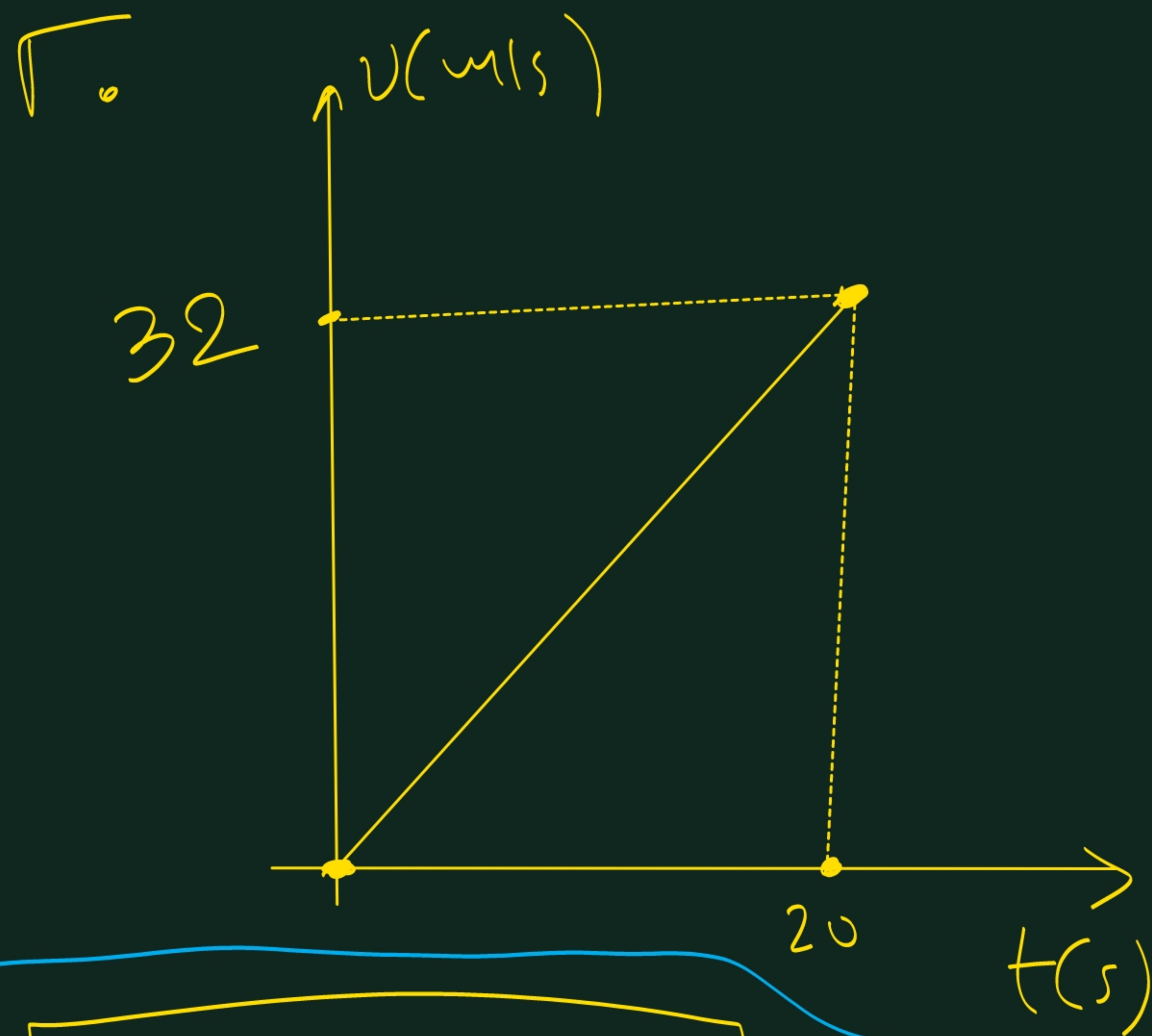
2^η λύση:

$5(t-4) = -4t \Rightarrow 5t - 20 = -4t \Rightarrow$

$9t = 20 \Rightarrow t = \frac{20}{9} \text{ sec}$ απορρίπτεται
 επειδή $t-4 > 0 \Rightarrow$

$S = \frac{1}{2} a_1 t^2 = \frac{1}{2} \cdot 1,6 \cdot 20^2 =$ $t > 4 \text{ sec.}$

$= 0,8 \cdot 400 \Rightarrow S = 320 \text{ m}$
 $v_{\text{μέση}} = \frac{S}{t} = \frac{320}{20} = 16 \text{ m/s.}$



B. $(v = v_0 - at) \Rightarrow 0 = 10 - 2t_2 \Rightarrow$
 $2t_2 = 10 \Rightarrow t_2 = 5 \text{ sec.}$
 $s_2 = v_0 \cdot t_2 - \frac{1}{2}at_2^2 = 10 \cdot 5 - \frac{1}{2} \cdot 2 \cdot 5^2 =$
 $= 50 - 25 \Rightarrow$
 $s_2 = 25 \text{ m.}$

Aba. 17 s. 2. 71.

A. $(v = v_0 - at$
 $s = v_0 t - \frac{1}{2}at^2)$

$v_0 = 10 \text{ m/s}$
 $a = 2 \text{ m/s}^2$

$v = \frac{v_0}{2} = 5 \text{ m/s}$

$(v = v_0 - at) \Rightarrow s = 10 - 2 \cdot t_1 \Rightarrow$

$\frac{2}{7}t_1 = \frac{5}{2} \Rightarrow t_1 = 2,5 \text{ sec.}$

$s_1 = v_0 t_1 - \frac{1}{2}at_1^2 = 10 \cdot 2,5 - \frac{1}{2} \cdot 2 \cdot 2,5^2 = 25 - 6,25 \Rightarrow$
 $s_1 = 18,75 \text{ m}$