Nama : Hananta Salura Zaidah
Npm : 2313022054

1). Kecepatan kereta : 106 km/jam
waktu kilatan cahaya setelah melewati stahiun; 30 s
jarak wilalan , 1 km = 1000 m

a. Pengamat di stasiun (x', t')
b. (x'', t'')

Jawab
a. $(x', t') = (1000 m, 30s)$
b. $x'' = x' - vt$
$= 1000 - (29, 44)(30)$
$= 1000 - 883,2$
$= 116,8 m$
$(x'', t'') = (116,8 m, 30s)$

2. Diketahui $V_b = 15 m/s$ (berlawanan arah)
$V_k = 72 km/jam = 20 m/s$
$V_{bs} = ?$

Jawab
$V_{bs} : V_k - V_b = 20 m/s - 15 m/s = 5 m/s$

3. Diket : $V_A = 60 km/jam$
$V_B = 40 km/jam$
Dit : a. $V_{AB} = ?$
b. $V_{BA} = ?$

Jawab
a. $V_{AB} = V_A - V_B$
$= 60 km/jam - 40 km/jam$
$= 20 km/jam$ (searah)

b. $V_{BA} = V_b - V_n$
$= 40 km/jam - 60 km/jam$
$= -20 km/jam$ (berlawanan arah)

4. Diketahui $x' = 5 m$
$v = 36 km/jam \to 10 m/s$
$t' = 5 s$
Ditanya a. (x', t')
b. (x, t)

Jawab
a. $(x', t') = (5m, 5s)$
b. $x = (vt') + x'$
$= (10.5) + 5$
$= 50 + 5$
$= 55 m \to (x,t) = (55m, 5s)$

5. Diketahui $d = 100$ m   ditanya = a. x ?

     $V_A = 60$ m/s   b. t' ?

     $V_p = 80$ m/s

Jawab

a. $t = \dfrac{d}{v_p}$ b. $V_y = V_p \sin \theta$

         $= \dfrac{100 \text{ m}}{80 \text{ m/s}} = 1{,}25$ s $= 80 \sin 53°$

                                 $= 80 . 0{,}798$

     $x = V_A . t$ $= 63{,}84$ m/s

       $= 60 . 1{,}25$ s $t' = \dfrac{d}{v_y} = \dfrac{100 \text{ m}}{63{,}84 \text{ m/s}} = 1{,}57$ s

       $= 75$ m

6. Diketahui : $C = C$ Ditanya

           $u = u$ a. t Total Arus ?

          $L = 2L$ (bolak - balik)   b. Perbandingan t Total Arus dg t

                                         total tegak lurus ?

a. V berlawanan $= C - u$

     t pergi $= \dfrac{L}{C - u}$ b. $c^2 = v^2 + u^2$ * t sekarang $= \dfrac{L}{\sqrt{c^2 - u^2}}$

                           $v^2 = c^2 - u^2$

     V searah $= C + u$ $V = \sqrt{c^2 - u^2}$ * t total tegak lurus $= 2 \times \dfrac{L}{\sqrt{c^2 - u^2}}$

     t kembali $= \dfrac{L}{C + u}$

     t total arus $= \dfrac{L}{C - u} + \dfrac{L}{C + u}$ $\dfrac{\text{T Total Arus}}{\text{T total Tegak lurus}} = \dfrac{2LC / c^2 - u^2}{2 \times L/\sqrt{c^2 - u^2}}$

         $= \dfrac{L(C + u) + L(C - u)}{(C - u)(C + u)}$ $= \dfrac{c}{c^2 - u^2} \times \sqrt{c^2 - u^2}$

         $= \dfrac{Lc + Lu + Lc - Lu}{c^2 - u^2}$ $= \dfrac{c\sqrt{c^2 - u^2}}{c^2 - u^2} = \dfrac{c}{\sqrt{c^2 - u^2}}$

         $= \dfrac{2LC}{c^2 - u^2}$

                           T total Arus (berlawanan searah) > T total

                           Tegak lurus (bolak balik)