

Task. A body travels with initial velocity of 10km/sec after 30 minutes it came to rest. Calculate the acceleration of the body.

Solution. Assume that the body moved with constant acceleration a . Its initial velocity is

$$v_0 = 10 \text{ km/sec} = 10 * 1000 \text{ m/s} = 10000 \text{ m/s}$$

and it moved during

$$t = 30 \text{ min} = 30 * 60 \text{ s} = 1800 \text{ s}$$

and came to the rest, so its final velocity is

$$v_1 = 0.$$

Therefore

$$a = \frac{v_1 - v_0}{t} = \frac{0 - 10000}{1800} \approx -5.6 \text{ m/s}^2.$$

Answer. $a = -5.6 \text{ m/s}^2$.