



The final velocity of a traveling object is given by the formula,  $v = u + at$

where  $v$  is the final velocity  
 $u$  is the initial velocity  
 $a$  is the acceleration  
and  $t$  is the time.

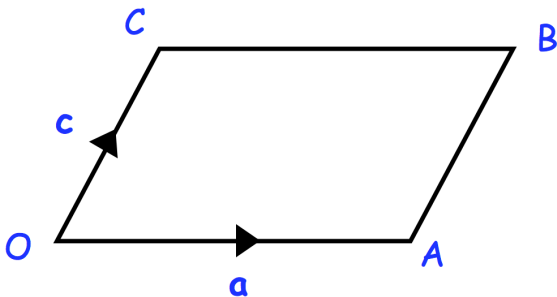
Given  $u = 5.4\text{m/s}$  correct to 1 decimal place

$a = 4.9\text{m/s}^2$  correct to 1 decimal place

$v = 25.32\text{m/s}$  correct to 2 decimal places

Calculate the upper bound for  $t$ .

Calculate the lower bound for  $t$ .



OABC is a parallelogram

$$\vec{OA} = \mathbf{a} \quad \vec{OC} = \mathbf{c}$$

Y is the midpoint of AC

OAD is a straight line where

$$OA:AD = z : 1$$

Given that

$$\vec{YD} = 6\mathbf{a} - \frac{1}{2}\mathbf{c}$$

Find the value of  $z$

Prove that the sum of the cubes of two consecutive odd integers is always a multiple of 4.